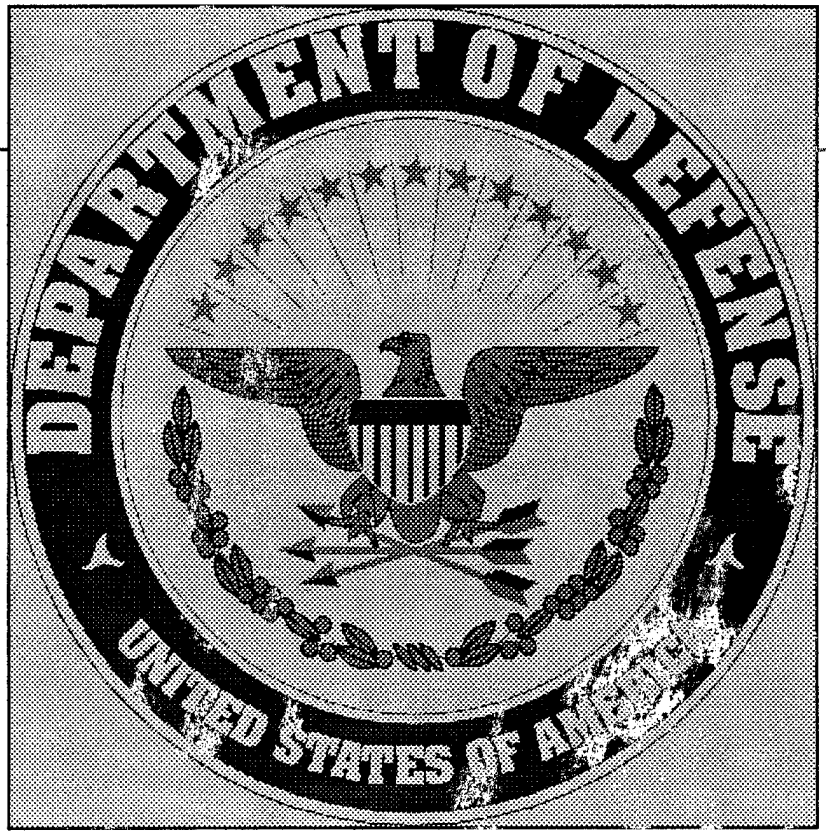

CAIS STANDARD MANUAL

SYSTEM NO. 5
BUILDING INTERIOR

CAS PROJECT
CAIS MANUAL

Issued April 28, 1995

8 Mar 96

MEMORANDUM FOR DTIC-OCP
ATTN: Ms. Lue Lynch
8725 John J. Kingman Road, Suite 0944
Fort Belvoir, VA 22060-6218

FROM: AL/EQ (STINFO)
139 Barnes Drive. Suite 2
Tyndall AFB FL 32403-5323

SUBJECT: Transmision of Technical Documents

1. As per telephone conversation with Andrew Poulis, EQ/TIC, the attached CAIS CTDS manuals are forwarded for accession, cataloging, and microconversions. Please forward the accession numbers to:

Andrew Poulis
AL/EQ/TIC
139 Barnes Drive. Suite 2
Tyndall AFB, FL 32403-5323

2. The Distribution statement should read as follows: Approved for Public Release: Distribution Unlimited.

3. If you have questions about these documents, please contact Andrew Poulis at DSN 523-6285.

Larry L. Testerman
LARRY L. TESTERMAN
Scientific and Technical
Information Program Manager

Atchs: Manuals

05 BUILDING INTERIOR

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05 BUILDING INTERIOR

ABSTRACT

GENERAL ORGANIZATION

At this installation the list of facilities to be surveyed, including infrastructure, will be addressed on the basis of 32 unique systems that form the CAIS Engineering Deficiency Standards and Inspection Methods document. Each system deals with a specific technical aspect of the facility to be surveyed. Within each system a further breakdown is made to subsystems, each having a related list of components. Detailed observations of the listed defects are provided so as to allow the entry of observed quantification data. A DOD CAIS manual is provided for each of the 32 systems with an internal organization as outlined below:

INSPECTOR'S GUIDE

I. General
   - A. Level I Inspection Method Description
   - B. Level II Inspection Method Description
   - C. Level III Inspection Method Description

II. General Inspection
   - A. Process. This section describes the process of the inspection activity.
   - B. Location. This section describes the procedure for locating the inspection units in the facility or infrastructure on this installation.

III. Inspector Qualifications
   This section notes the minimum qualifications for the person or persons performing the survey.

IV. Inspection Unit
   This section describes how the IU (Inspection Unit) is determined for the particular component being surveyed.

V. Unit Costs
   This section notes the nature of repair costs for this system.

VI. Standard Safety Requirements
   This section lists safety procedures and equipment required to implement a safe environment for the conduct of this survey.

VII. Standard Tools
   This section lists a set of standard tools required for the general conduct of this survey.

VIII. Special Tools and Equipment Requirements
   This section refers to special tools or equipment requirements endemic to the nature of the system being surveyed.

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IX. Level II Inspection Method Keys
This section explains the use of keys as they relate to Level II Guide Sheets.

X. Level III Inspection Method Keys
This section explains the use of keys as they relate to Level III Guide Sheets.

XI. Replacement Cost
This section describes the nature and location of replacement cost data.

XII. Appendices
Appendix A. Provides a listing and definition of all abbreviations used both in the Standards and in the data base.

Appendix B. Provides a glossary of terms with their definitions as used in the Standard.

Appendix C. This section contains a listing of the average life cycle durations for each assembly* in the Standard.

* Assembly is a term describing the level at which replacement rather than repair occurs. This can be at the subsystem or component designation, depending on the system being surveyed.

SYSTEM TREE

The System Tree is a graphical representation of the Work Breakdown Structure, showing system, subsystem and component relationships for the Building Interior System.

INSPECTION METHODS

Description
Describes the nature of what is to be condition surveyed.

Special Tool and Equipment Requirements
Lists any special tools required for this specific subsystem.

Special Safety Requirements
This section outlines any special safety measures or equipment required for this specific subsystem so as to maintain a safe environment and process in the conduct of the condition survey.

Component List
All components to be surveyed under this subsystem are listed here.

Related Subsystems
All other subsystems that have a survey relationship to this subsystem are listed here to help coordinate a complete and thorough condition assessment survey.

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Standard Inspection Procedure

This statement indicates the various levels of survey effort required for this subsystem.

Components

The previously listed components of this subsystem are described with a survey procedure recommended on a component by component basis. For each component there is a listing of defects with each defect broken down into observations describing the nature and severity of the defective condition observed. The surveyor enters a quantification value for each defect/observation encountered in the field CAIS device (DCD) to record the result of his survey.

References

This page lists the reference sources from which the foregoing subsystem data was developed.

Guide Sheet Control Number

This section lists the key numbers that tie the written Level II and Level III guide sheets to specific components in this subsystem.

Level II and Level III Inspection Method Guide Sheets

This section contains the detailed descriptions of the Level II and III survey and inspection procedures for this subsystem.

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INSPECTOR'S GUIDE

I. GENERAL

A. Level I Inspection Method

The Level I Inspection Method of building interior systems consists of a thorough inspection of the system. The survey activity is designed to be performed by a single surveyor.

B. Level II Inspection Method

Level II inspections are triggered by defect/observations noted at the Level I inspection or in some cases, are required to conduct a meaningful survey of the component being surveyed. There are some Level II inspections in Building Interior Systems. They occur typically where access to the component being surveyed is required through an access panel or other device. Level II inspections are referenced by defect/observations through a "Level II key", which denotes a specific Guide Sheet that describes the Level II inspection activity.

C. Level III Inspection Method

The Level III inspection is triggered by defect/observations occurring in the Level I and II inspections. The Level III inspection can also occur as a result of time based scheduling, antidotal experience, or component age compared to its life cycle. The Level III inspection is referenced through a Level III key which in turn, denotes a specific Guide Sheet describing the Level III inspection process and requirements. Level III inspections produce a detailed, written engineering assessment of the deficiency along with an estimated cost of correction, and are performed at the option of the Facility Manager.

II. GENERAL INSPECTION

A. Process

Surveys are normally conducted at the component level. Figure 05-A provides the breakdown from system through component for the Building Interior System. The surveyor will work through the Work Breakdown Structure (WBS) to conduct the inspection. At the component level the surveyor will be provided a list of defects, each of which is described further in detail as observations. These observations are described to various levels of severity as they relate to the effect of the life of the system. The quantification of each deficiency is identified by the surveyor using the associated unit of measure. Once an observation is populated with a deficient quantity, the inspector will be requested to provide information on the component type and location. The installation date or age of the component may be preloaded into the WBS for each asset from the Real Property Inventory List or site specific information. If necessary, age data can be overridden by the surveyor, Site CAIS personnel, or the Facility Manager.

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Office Preparation - The general inspection process for all building assets requires a basic building drawing (including room numbers or some other means of locating inspection data). The drawing aids the inspector in accomplishing a thorough inspection by ensuring all areas are covered and also assists in locating Inspection Units (IU's). Existing building drawings (with room numbers) should be maintained and provided to the inspector by the Facility Manager prior to field surveys. If a drawing does not exist for a particular building, the inspector should sketch a basic drawing, before beginning the inspection, in enough detail to allow for proper locations of IU's.

On-Site Preparation - Before beginning the actual inspection, the inspector should review existing files for the buildings being surveyed. If the files have missing portions, are not up-to-date or do not exist, then the inspection scheduler or manager may direct the inspector to obtain the information by interviewing key personnel, such as building maintenance personnel, to determine their knowledge of the present condition.

It may be necessary for the inspector to contact the building superintendent or custodian for assistance in gaining access to the facility. Once on the premises, the drawing/floor plan should be developed (or verified, if a plan already exists) and the inspection may begin. If the inspection is performed in a space which precludes the use of the Field CAIS unit, the inspector may elect to observe the IU and transfer the findings to Field CAIS upon exiting.

The inspector will quantify the amount of distress for each observation using the predetermined Unit of Measure (UOM) for the component as presented in Field CAIS. The UOM is pre-loaded into Field CAIS for both the component and the defect measurements. The following rule should be followed for determining the defect quantity:

- Measure lengths and areas to determine defect quantities. Estimating, instead of measuring, compromises accuracy.

In some cases, the UOM for the component will be different than the UOM for the defect. For example, a long crack is measured in linear feet and the component, foundation wall, is measured in square feet. Field CAIS and Site CAIS will automatically convert linear feet to square feet by assuming the crack affects a one foot wide section.

Multiple defects may exist at the component level, within an IU. Defect quantities are captured by the inspector for each occurrence within a discrete IU. When multiple defects exist on the same IU, the inspector must quantify the total amount affected by each observation for that IU. In cases where defects overlap an affected area, the inspector will quantify the more severe defect of the overlapping area and the remaining affected area is recorded for the less severe defect.

Example: The inspector identifies two square feet of holes within a ten square foot area that is dented and bent. The inspector will quantify two square feet under the observation "Surface material damage evidenced by holes, cracks, loose, missing or misaligned surface material, and material deterioration" and eight square feet under the observation "Surface material damage evidenced by dents, depression, bent, joint separation."

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Once all the observations for a component are populated with the appropriate defect quantities, the inspector must close-out the component on Field CAIS. This allows Field CAIS to apply the gathered information to a singularly defined component. The next subsequent observation will retain the IU/Location/Type information from the previous entry. The inspector may accept this information or change any portion of it.

B. Location

Level I and II inspections will be located by the surveyor through a discrete entry in the Field CAIS. The "IU", (Inspection Unit) will be derived from Facility supplied maps, and segment numbering lists, or other I.D. numbering systems. In all cases plans and maps shall be orientated with the top of each sheet being the north direction, so as to allow directional location and description. In the case where no other means of location exist the inspector shall enter a brief (65 character) description of location. Locations must be accurate to insure future repeatability and consistent results.

III. INSPECTOR QUALIFICATIONS

The minimum Inspector qualification for the Building Interior System requires a five year journeyman. Experience or familiarity in the areas of carpentry and masonry is desirable but not required. All of the condition survey requirements for this system can be accomplished at the Level I inspection by a single inspector, however, safety and other considerations may require that inspectors work in teams. Inspectors will be specifically trained in the CAS system and its usage and will be CAS certified in the "Mechanical" discipline.

IV. INSPECTION UNIT (IU)

The Inspection Unit (IU) is defined at the component level. Inspection Units are always located and quantified by the inspector. Deficiencies and observations are always tied to the IU and are not independently located.

IU's for the Building Interior System are measured in square feet (SF), linear feet (LF) or by individual occurrences (EA). The boundaries of each IU will be defined by some man-made break in the continuity of the material being inspected (exterior walls) or by the occurrence or presence of the item (doors and windows). The following list describes some typical examples:

- Interior Partitions - Interior partitions are defined in square feet (SF). The IU is defined as the contiguous area of the partition which possess the same material, age, repair and construction characteristics. At a minimum, each "side" of the room (defined by corners or changes in wall direction) should define a unique IU. If the type of construction, material, age, or level of maintenance various across the contiguous partition, it should be broken into separate IU's based on consistent materials, age, etc.

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- Interior Ceiling - Interior Ceilings are defined in square feet (SF) based on the contiguous area of ceiling under evaluation. In cases where permanent partitions are not attached to the ceiling, the inspector should treat the area within the partition as a separate inspection unit due to potential differences in deterioration and wear.

- Interior Floor - Interior Floors are defined in square feet (SF). The IU is defined as the contiguous area of the floor which possess the same material, age, repair and construction characteristics. If a large floor area is made up of two different material types (carpet and vinyl) or two similar material types with very different ages or conditions (old carpet and new carpet), each type should define its own IU.

- Interior Wall Sealant/Caulking is defined in linear feet (LF). The IU is defined as a contiguous area of use. Typically, the inspector should translate this to mean "the total quantity of caulking/sealant for present on the exterior wall". Each wall would, therefore, be identified as a unique caulking IU located by the same nomenclature used to the wall and quantified in linear feet (LF).

- Interior Doors and Windows are quantified at both the subsystem and component level. In the case of doors and windows, the inspector is prompted to select a "Type" for each door or window assembly (door/window, frame, finish, caulking, hardware) based on the subsystems physical characteristics, prior to identifying and quantifying the IU. The IU is still defined at the component level in terms of square feet (SF), linear feet (LF) or each (EA) depending on the nature of the component. Doors and windows are typically quantified in SF, frames and caulking in LF, and hardware in EA.

  Interior doors and windows may be located by either room they connect, however the location description must accurately reflect the location and allow a different inspector to identify the same door or window.

- Interior Millwork - Millwork is defined in square feet (SF) with the exception of hardware which is defined as each (EA). The IU should represent the total SF of cabinet, counter top or shelf space. Each hardware "set" should represent an inspection unit (3 hinges on a single door represent a "set").

Any unusual conditions pertaining to the IU should also be noted in Field CAIS, when the IU is defined. This may include information that should be noted for the Facility Manager's use, regarding life/health/safety, containment, environment, or degree of difficulty. Other optional information may also be entered to further describe the IU.

V. UNIT COSTS

The unit costs that are applied to the quantities recorded for each observation are contained within the Site CAIS as repair cost.

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VI. STANDARD SAFETY REQUIREMENTS

The Master Safety Plan will be followed at all times during the condition survey.

Inspector may utilize the following protective gear:

- Hard hat - to be worn during all surveys
- Safety glasses - to be worn during all surveys
- Safety shoes - to be worn during all surveys
- Coveralls - to be worn as necessary
- Gloves - to be worn as necessary
- Ear plugs - to be worn in designated areas
- Knee pads - to be worn when crawling is required
- Rain suit - to be worn as necessary
- Wet suit - to be worn as necessary

VII. STANDARD TOOLS

Employee Identification Card - to be worn or carried during all survey activities
Data Collection Device (DCD)
Battery pack for DCD
Flashlight
Tape measure - 30'
Rule - 6'
Tool bag
Screwdrivers -
    Phillips
    Straight slot
Knife
Pliers
8' Extension Ladder
Binoculars

VIII. SPECIAL TOOLS AND EQUIPMENT REQUIREMENTS

At the subsystem level, the deficiency standard has identified special tools and equipment required for the standard inspection of the associated components, which exceed the standard tools identified for the system. Level III Inspection Method Guide Sheets will address additional tools and equipment requirements that are specific to that particular advanced method of inspection.

Facility Managers should review these sections in order to determine any special tool requirements for subsystems they are to inspect/survey.

IX. LEVEL II INSPECTION METHOD KEYS

Certain observations will reference a Level II Inspection Method. The Facility Manager will be able to identify deficiencies where a Level II inspection is flagged. The Level II key at the observation level will refer to a specific guide sheet.

All Level II Guide Sheets are located at the end of each Subsystem section. A Guide Sheet Reference page precedes Level II and Level III Guide Sheets.

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X. LEVEL III INSPECTION METHOD KEYS

Certain observations will trigger a Level III inspection. The Facility Manager will be able to identify deficiencies where a Level III inspection is flagged. The Level III Key at the observation level will refer to a specific guide sheet. These guide sheets may refer the Facility Manager to a more sophisticated and costly test method.

All Level III Guide Sheets are located at the end of each Subsystem section. A Guide Sheet Reference page precedes Level II and Level III Guide Sheets.

XI. REPLACEMENT COST

A replacement cost for each subsystem type will be contained within the cost estimating system in the Site CAIS.

XII. APPENDICES

Appendix A - Abbreviations

A summary and definition of all abbreviations used in this system are contained in Appendix A which is located at the end of Building Interior.

Appendix B - Glossary

A glossary of terms used in this system are contained in Appendix B which is located at the end of Building Interior.

Appendix C - Life Cycles

A listing of the average life cycle durations for each assembly* in the Standard.

Note - Facility Manager's Guide

The following are included in the Facility Manager's Guide:

A table showing the required manhours to perform the standard inspection for this facility listed by Cat Code (three digit).

A listing of all Level III inspections with their estimated cost and time to perform. This list will include frequency of inspection for time driven Level III's.

* Assembly is a term describing the level at which replacement rather than repair occurs. This can be at the subsystem or component designation, depending on the system being surveyed.

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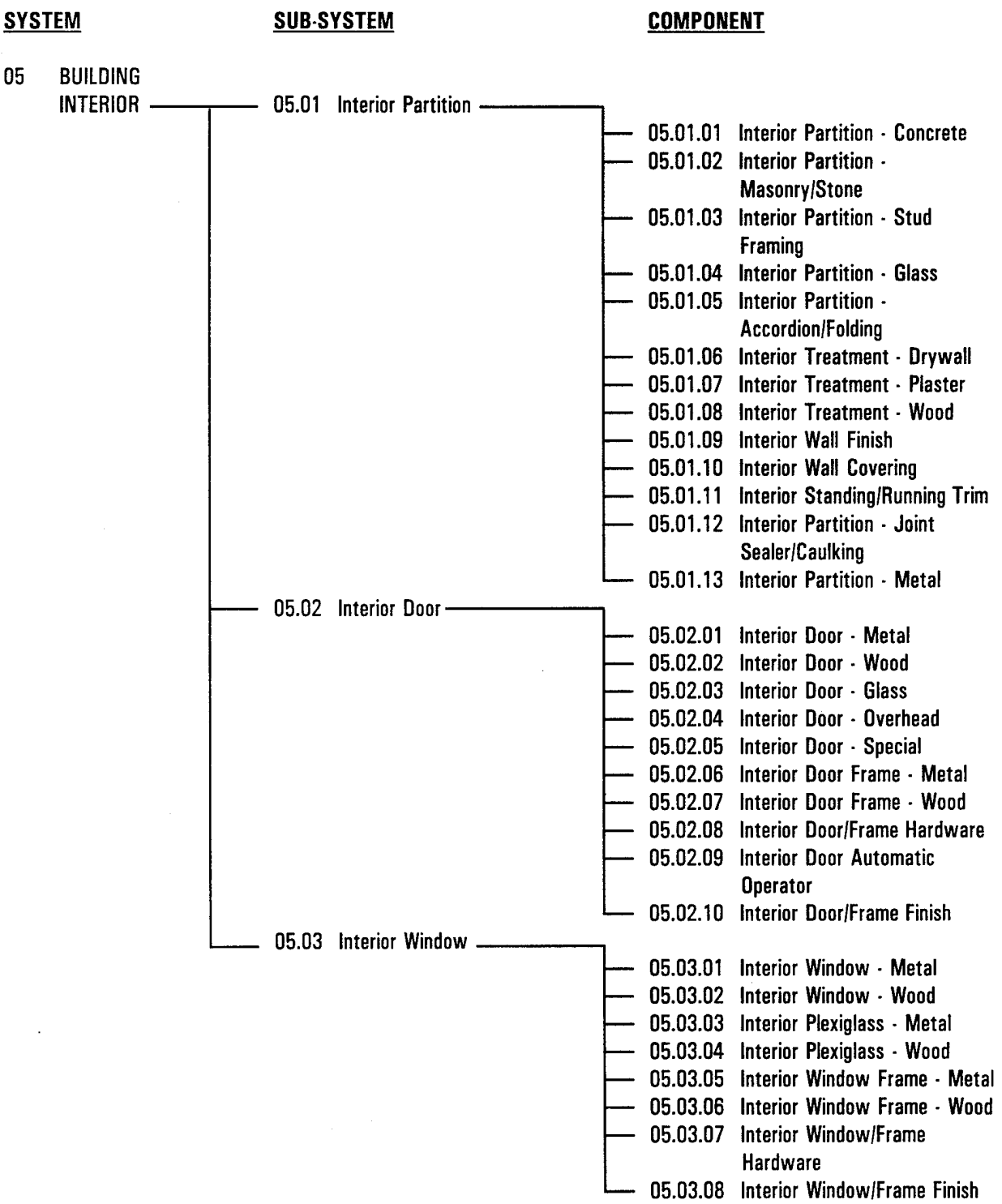
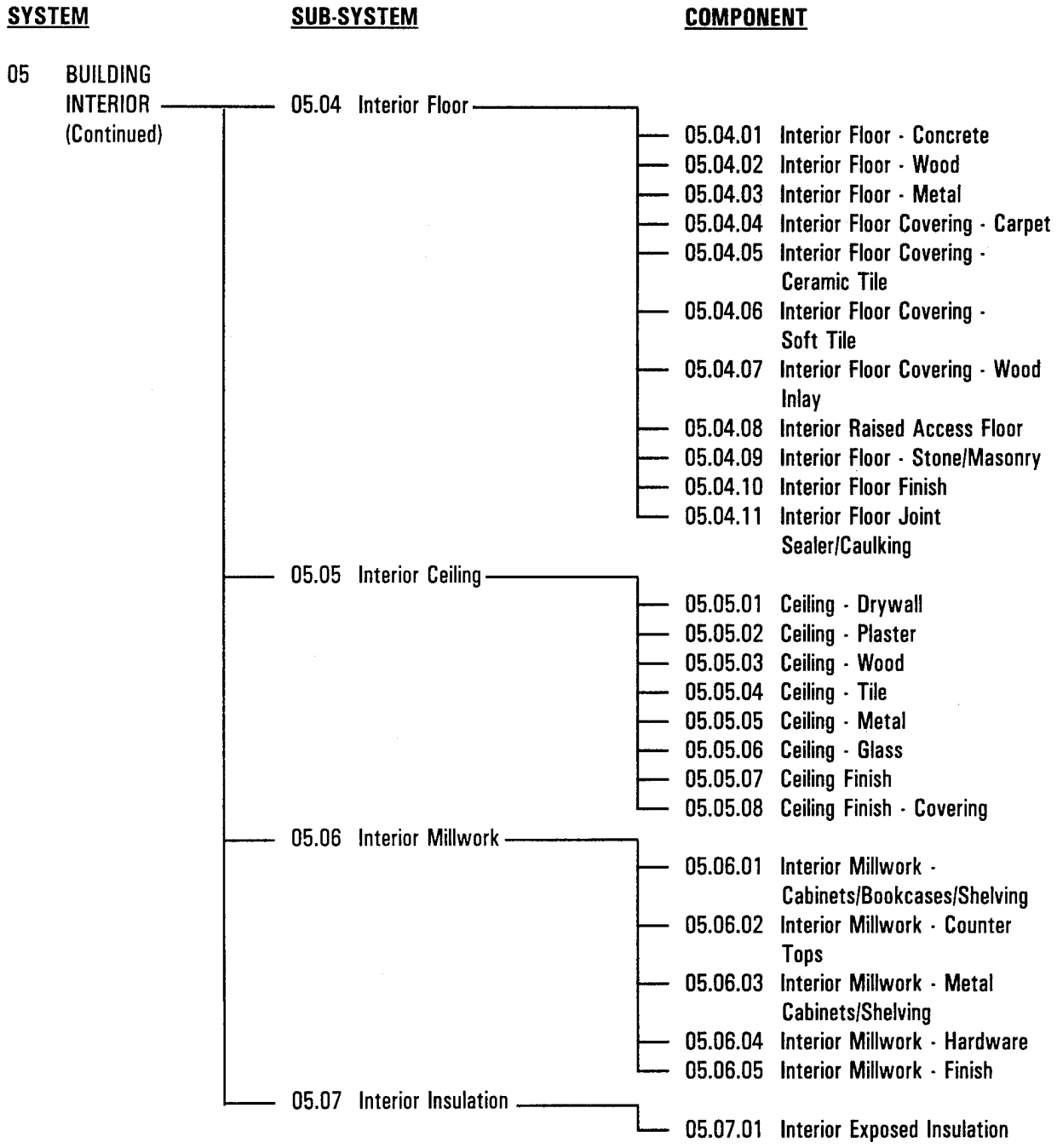
Figure 05-A. WORK BREAKDOWN STRUCTURE



05 BUILDING INTERIOR

Figure 05-A. WORK BREAKDOWN STRUCTURE (Continued)



05.01 INTERIOR PARTITION

DESCRIPTION

Interior Partitions are any inside wall or vertical enclosure within the building. Partitions are a subsystem of Building Interior. Primary function of partitions is to encase areas within the building, and, in some cases, carry live and dead loads. The partitions also serve as a security, thermal, and acoustical barrier and provide fire resistance. In cases where partitions are finished, paneled, or similarly covered, the inspector will utilize the components which are readily inspectable through the standard inspection process. Concrete or masonry or wood will not be inspected when it is covered by plaster, furred finishes or similar materials.

SPECIAL TOOL AND EQUIPMENT REQUIREMENTS

No special tools are needed for the inspection of the Partitions, beyond the requirements listed in Section VII Standard Tools of Building Interior.

SPECIAL SAFETY REQUIREMENTS

No special safety requirements are needed for the inspection of Partitions beyond the requirements listed in the Master Safety Plan and System Safety Section.

COMPONENT LIST

- 05.01.01 INTERIOR PARTITION - CONCRETE
- 05.01.02 INTERIOR PARTITION - MASONRY/STONE
- 05.01.03 INTERIOR PARTITION - STUD FRAMING
- 05.01.04 INTERIOR PARTITION - GLASS
- 05.01.05 INTERIOR PARTITION - ACCORDION/FOLDING
- 05.01.06 INTERIOR SURFACE - DRYWALL
- 05.01.07 INTERIOR SURFACE - PLASTER
- 05.01.08 INTERIOR SURFACE - WOOD
- 05.01.09 INTERIOR WALL FINISH
- 05.01.10 INTERIOR WALL COVERING
- 05.01.11 INTERIOR STANDING/RUNNING TRIM

RELATED SUBSYSTEMS

Due to the related nature of the elements requiring inspection, the following should be reviewed for concurrent inspection activities.

05.02	INTERIOR FINISHES
05.03	INTERIOR DOORS
05.04	INTERIOR WINDOW
05.05	INTERIOR FLOOR/FLOOR COVERING
08.00	BUILDING MECHANICAL (all subsystems)
10.00	BUILDING ELECTRICAL (all subsystems)

05.01 INTERIOR PARTITION

STANDARD INSPECTION PROCEDURE

The standard inspection procedure for this subsystem is a visual inspection of each interior partition, augmented by a Level II Inspection when required. Very few Level II or III Inspection Keys are indicated for the Building Interior Partition subsystem. The inspection should be carried out in order of presentation of the various components. Associated defects and observations are listed which will be presented in the inspector's Data Collection Device.

COMPONENTS

◆ 05.01.01 INTERIOR PARTITION - CONCRETE

Concrete walls may serve as the structural component of a building, and may be textured to provide a desired appearance. Concrete is a mixture of aggregates, cement, and water, which when mixed together produce a strong, weather-resistant, durable, long-lasting wall. Concrete walls also incorporate reinforcing steel to improve the structural properties of the wall. This portion of the inspection process is not designed to address the structural capacities of the concrete walls. Reference 02.01 Building Structural Frame to inspect the structural aspects of concrete partitions.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by scratches or hairline cracks to surface of wall.	SF		
***{Severity L}			
b. Surface damage evidenced by stains, efflorescence, graffiti on wall surface.	SF		
***{Severity L}			
c. Surface material damage evidenced by spalling, cracks, or chips in surface of wall.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, spalling, or fault which allows air or moisture to penetrate the wall.	SF	1	
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ **05.01.01 INTERIOR PARTITION - CONCRETE - (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Misalignment:** (caused by impact damage, building settlement, etc.) Observation:			
a. Noticeable misalignment evidenced by joint separation, compression or other component distress. ***{Severity M}	SF		
b. Noticeable misalignment evidenced by failure of anchor or attachment devices, presenting unsafe condition. ***{Severity H}	SF		1

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.02 INTERIOR PARTITION - MASONRY/STONE

Masonry is a combination of small building units made of clay, shale, concrete, gypsum, or stone that are set in mortar. Mortar is the binding agent which holds masonry units together. Mortar is made up of sand, lime, cement, and water. Color can be added to match the masonry units. Some masonry walls incorporate other building materials within their hollow cores and mortar joints. These materials include ties, grout, reinforcing steel, insulation, and electrical/mechanical components. Reference 02.01 Building Structural Frames to inspect the structural aspects of masonry/stone walls.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by scratches or hairline cracks to surface of wall.	SF		
***{Severity L}			
b. Surface damage evidenced by stains, efflorescence, graffiti on wall surface.	SF		
***{Severity L}			
c. Surface material damage evidenced by spalling, cracks, or chips in surface of wall.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, spalling, or fault which allows air or moisture to penetrate the wall.	SF	2	
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ **05.01.02 INTERIOR PARTITION - MASONRY/STONE (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Misalignment:** (caused by impact damage, building settlement, etc.) Observation:			
a. Noticeable misalignment evidenced by joint separation, compression or other component distress. ***{Severity M}	SF		
b. Noticeable misalignment evidenced by failure of anchor or attachment devices, presenting unsafe condition. ***{Severity H}	SF		2
Defect:			
*** Mortar Deterioration:** (caused by environmental conditions or building settlement, etc.) Observation:			
a. Mortar deterioration evidenced by hairline cracks or soft joints. ***{Severity M}	SF		
b. Mortar deterioration evidenced by cracks, loose or missing. ***{Severity H}	SF	2	

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.03 INTERIOR PARTITION - STUD FRAMING

Stud framing systems include assembling of vertical and horizontal members to form the interior wall of the structure. Stud frame walls may be sheathed with wood boards, plywood, paneling, plaster, fiber or gypsum boards, which provide rigidity, and may serve as a nailing base to receive interior finishes. Reference 02.01 Building Structural Frames to inspect the structural aspects of concrete floor.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Misalignment:** (caused by impact damage, building settlement, etc.) Observation:			
a. Noticeable misalignment evidenced by joint separation, compression or other component distress. ***{Severity M}	SF		3
b. Noticeable misalignment evidenced by failure of anchor or attachment devices, presenting unsafe condition. ***{Severity H}	SF		3

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.04 INTERIOR PARTITION - GLASS

A glass partition wall is an interior wall that carries no roof or floor loads; it is fastened to or supported by a structural frame and acts solely to define interior spaces. It usually consists of wood or metal in combination with glass, plastics, and other surfacing materials.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by scratches or hairline cracks to surface of wall. ***{Severity L}	SF		
b. Surface damage evidenced by stains, graffiti on wall surface. ***{Severity L}	SF		
c. Surface material damage evidenced by cracks, or chips in surface of wall. ***{Severity M}	SF		
d. Surface material damage evidenced by holes, cracks, or fault which allows air or moisture to penetrate the wall. ***{Severity H}	SF	3	

Defect:

*** Misalignment:** (caused by impact damage, building settlement, etc.) Observation:			
a. Noticeable misalignment evidenced by joint separation, compression or other component distress. ***{Severity M}	SF	1	
b. Noticeable misalignment evidenced by failure of anchor or attachment devices, presenting unsafe condition. ***{Severity H}	SF		4

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ **05.01.04 INTERIOR PARTITION - GLASS (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Mortar Deterioration (Glass Blocks):** (caused by environmental exposure or building settlement, etc.) Observation:			
a. Mortar deterioration evidenced by hairline cracks or soft joints. ***{Severity M}	SF		
b. Mortar deterioration evidenced by cracks, loose or missing. ***{Severity H}	SF	3	
Defect:			
*** Plastic Damage (Plastic Light/Wall):** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading ***{Severity L}	SF		
b. Damage evidenced by cracks. ***{Severity M}	SF		
c. Plastic damage evidenced by missing or broken with holes. ***{Severity H}	SF		
d. Deteriorated or missing glazing ***{Severity H}	LF		

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.05 INTERIOR PARTITION - ACCORDION/FOLDING

The doors in this section are designed to provide flexible partitioning of interior spaces. Folding/accordion partitions typically utilize a ceiling track system with either flexible or rigid partitions.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs of wall. ***{Severity L}	SF		
b. Surface material damage evidenced by dents, depression, splitting of wall. ***{Severity M}	SF		
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration. ***{Severity H}	SF		
Defect:			
* **Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident). ***{Severity L}	SF		
b. Deterioration evidenced by pitting, or blistering. ***{Severity M}	SF		
c. Deterioration evidenced by holes or loss of metal. ***{Severity H}	SF	4	

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ **05.01.05 INTERIOR PARTITION - ACCORDION/FOLDING (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Track/Roller Damage:**			
Observation:			
a. Accordion/Folding doors do not move smoothly but are operational. (completely opened and closed)	LF		
***{Severity L}			
b. Accordion/Folding doors stick or are otherwise difficult and require substantial effort to open and close.	LF		
***{Severity M}			
c. Accordion/Folding doors do not completely open or close due to track or roller damage.	LF	4	5
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.06 INTERIOR TREATMENT - DRYWALL

Drywall is a gypsum based product that is produced in sheets. The core of the gypsum sheet is a mixture of calcined gypsum, starch, water, pregenerated foam, and various additives. The core is sandwiched between faces of paper that provides the surface of the sheet. Drywall is easily installed to the wall structure or framing elements. It can be either nailed, glued, or screwed. The sheets then require the joints and fastener heads to be taped and bedded which, when completed, hide any imperfections, and the wall appears to be one entire sheet of drywall. (The term "Sheetrock" is a registered trademark of one manufacturer of gypsum board, and should not be used in a generic sense).

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on wall.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, joint separation of wall.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, sagging, loose or missing surface material, and material deterioration which exposes the substrate.	SF		
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.07 INTERIOR TREATMENT - PLASTER

Plastering is a generic term that refers to any of a number of cementitious substances that are applied to a surface in a paste form. Plaster is usually applied directly to a group of plaster bases know as lath, which are attached to the wall structure. Plaster may be applied either by machine (spray) or by hand (trowel or float).

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, lath separation, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on wall. ***{Severity L}	SF		
b. Surface damage evidenced by stains, efflorescence, graffiti on wall. ***{Severity L}	SF		
c. Surface material damage evidenced by dents, depression, hairline cracks on wall. ***{Severity M}	SF		
d. Surface material damage evidenced by holes, cracks, loose, or missing surface material, and material deterioration which exposes the substrate. ***{Severity H}	SF		
e. Surface damage evidenced by lath separation or misalignment from structure. ***{Severity H}	SF		

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.08 INTERIOR TREATMENT - WOOD

The most commonly used species of wood used for walls is pine, cedar, redwood, fir, oak, walnut and mahogany. Interior partitions may be covered with sheets or boards that are nailed to the wall structure. Wood surface treatment offers economical advantages and adds to the aesthetics of the building. The wall treatment can be purchased with factory finishes or may be finished in the field.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on wall. ***{Severity L}	SF		
b. Surface damage evidenced by stains, graffiti on wall. ***{Severity L}	SF		
c. Surface material damage evidenced by dents, depression, splitting, joint separation of wall. ***{Severity M}	SF		
d. Surface material damage evidenced by holes, cracks, loose, or missing surface material, and material deterioration which exposes the substrate. ***{Severity H}	SF		

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.09 INTERIOR WALL FINISH

Paint/stain/varnish/texture is applied as a thin layer of coating to a wall substrate by brush, roller, sprayer, or other suitable method.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Finish Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Finish damage evidenced by mars, scratches, scuffs, fading, and discoloration.	SF		
***{Severity L}			
b. Finish damage evidenced by stains or graffiti.	SF		
***{Severity L}			
c. Finish damage evidenced by exposure of substrate.	SF		
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.10 INTERIOR WALL COVERING

Some interior partitions have special covering requirements that improve the rooms appearance, acoustics, fire resistance, sanitation requirements and moisture protection.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Covering Damage:** (caused by impact damage, previous maintenance patching, insect/animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs.	SF		
***{Severity L}			
b. Surface damage evidenced by stains, graffiti.	SF		
***{Severity L}			
c. Surface material damage evidenced by dents, depression, splitting, joint separation.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, loose, or missing surface material, and material deterioration which exposes the wall substrate.	SF		
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.10 **INTERIOR WALL COVERING (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Mortar/Grout Deterioration:** (caused by environmental exposure or building settlement, etc.) Observation:			
a. Mortar/grout deterioration evidenced by hairline cracks or soft joints.	SF		
***{Severity M}			
b. Mortar/grout deterioration evidenced by cracks, loose or missing.	SF		
***{Severity H}			
Defect:			
*** Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.11 INTERIOR STANDING/RUNNING TRIM

Standing and running trim is a term applied to the visible finishing work of the interior of a building. The main function is to cover joints between the transition of building materials, protect finished surfaces and provide a finished appearance.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Trim Damage:** (caused by impact damage, previous maintenance patching, insect/animal damage, water intrusion, etc.) Observation:			
a. Trim damage evidenced by mars, scratches, or scuffs. ***{Severity L}	LF		
b. Trim damage evidenced by stains, graffiti. ***{Severity L}	LF		
c. Trim material damage evidenced by dents, depression, splitting, joint separation. ***{Severity M}	LF		
d. Trim material damage evidenced by holes, cracks, loose, or missing surface material, and material deterioration which exposes the substrate. ***{Severity H}	LF		

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.11 INTERIOR STANDING/RUNNING TRIM (Continued)

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Mortar/Grout Deterioration:** (caused by environmental exposure or building settlement, etc.) Observation:			
a. Mortar/grout deterioration evidenced by hairline cracks or soft joints.	LF		
***{Severity M}			
b. Mortar/grout deterioration evidenced by cracks, loose or missing.	LF		
***{Severity H}			
Defect:			
* **Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident).	LF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	LF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	LF		
***{Severity H}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.12 INTERIOR PARTITION - JOINT SEALER/CAULKING

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Sealant Damage:**			
Observation			
a. Damage evidence by hardening of sealant/caulking	LF		
***{Severity L}			
b. Damage evidence by shrinking, cracking or missing sealant/caulking	LF		
***{Severity L}			

05.01 INTERIOR PARTITION

COMPONENTS (Continued)

◆ 05.01.13 INTERIOR PARTITION - JOINT SEALER/CAULKING'

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Interior Partition - Metal**			
Observation:			
a. Surface Damage - Mars, scratches, and scuffs on surface	SF		
***{Severity L}			
b. Surface Damage - Stains, graffiti on surface	SF		
***{Severity L}			
c. Surface Damage - Dents, depression, bent and joint separation	SF		
***{Severity M}			
d. Surface Damage - Holes, cracks, loose panels and missing material	SF		
***{Severity H}			
e. Trim damage evidenced by loose, missing or deteriorated material	LF		
***{Severity H}			
Defect:			
*** Corrosion**			
(caused by water damage, etc.)			
Observation:			
a. Surface deterioration (no pitting evident)	SF		
***{Severity L}			
b. Deterioration evidence by pitting or blistering	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss or metal	SF		
***{Severity L}			

05.01 INTERIOR PARTITION

REFERENCES

1. Building Construction Materials and Types of Construction, D. C. Ellison, W. C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

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05.01 INTERIOR PARTITION

LEVEL II KEY	GUIDE SHEET CONTROL NUMBER
GS-II	05.01.01-1
GS-II	05.01.02-2
GS-II	05.01.04-3
GS-II	05.01.05-4

LEVEL III KEY	GUIDE SHEET CONTROL NUMBER
GS-III	05.01.01-1
GS-III	05.01.02-2
GS-III	05.01.03-3
GS-III	05.01.04-4
GS-III	05.01.05-5

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1

SUBSYSTEM: INTERIOR PARTITION - CONCRETE
CONTROL NUMBER: GS-II 05.01.01-1

Application

This guide applies to investigation of possible material problems with interior concrete partition walls evidenced by bulging, tilting, cracks, spalling, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Results of LEVEL I inspection indicate a deficiency in the concrete partition wall structure. Although LEVEL I inspection methodology is very useful for determining the general condition of the wall, the LEVEL II inspection provides a more thorough analyses of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Probe with screw driver to determine the extent of deterioration in terms of the depth, and gross dimension of the surface area exhibiting a deficiency.

2. Probe with screw driver to determine possible failure of material or bearing surface related to the wall.

3. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1 (Continued)

SUBSYSTEM: INTERIOR PARTITION - CONCRETE
CONTROL NUMBER: GS-II 05.01.01-1

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

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LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2

SUBSYSTEM: INTERIOR PARTITION - MASONRY/STONE
CONTROL NUMBER: GS-II 05.01.02-2

Application

This guide applies to investigation of possible material problems with interior masonry/stone partition walls evidenced by bulging, tilting, cracks, spalling, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Results of LEVEL I inspection indicate a deficiency in the masonry/stone partition wall structure. Although LEVEL I inspection methodology is very useful for determining the general condition of the wall, the LEVEL II inspection provides a more thorough analyses of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Probe mortar and masonry face with screw driver to determine the extent of deterioration in terms of the depth, and gross dimension of the surface area exhibiting a deficiency.

2. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2 (Continued)

SUBSYSTEM: INTERIOR PARTITION - MASONRY/STONE
CONTROL NUMBER: GS-II 05.01.02-2

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

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LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 3

SUBSYSTEM: INTERIOR PARTITION - GLASS
CONTROL NUMBER: GS-II 05.01.04-3

Application

This guide applies to investigation of possible material problems with interior glass partition walls evidenced by bulging, tilting, cracks, deflection, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Results of LEVEL I inspection indicate a deficiency in the glass partition wall structure. Although LEVEL I inspection methodology is very useful for determining the general condition of the wall, the LEVEL II inspection provides a more thorough analyses of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Probe with screw driver to determine the extent of deterioration in terms of the depth, and gross dimension of the surface area exhibiting a deficiency.

2. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 3 (Continued)

SUBSYSTEM: INTERIOR PARTITION - GLASS
CONTROL NUMBER: GS-II 05.01.04-3

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
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LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 4

SUBSYSTEM: INTERIOR PARTITION - ACCORDION/FOLDING
CONTROL NUMBER: GS-II 05.01.05-4

Application

This guide applies to investigation of possible material problems with interior accordion/folding partition walls evidenced by bulging, sagging, deflection, track/roller damage, cracks, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Results of LEVEL I inspection indicate a deficiency in the accordion/folding partition wall structure. Although LEVEL I inspection methodology is very useful for determining the general condition of the wall, the LEVEL II inspection provides a more thorough analyses of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Probe with screw driver to determine the extent of deterioration in terms of the depth, and gross dimension of the surface area exhibiting a deficiency.

2. Probe with screw driver to determine track/roller malfunction.

3. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 4 (Continued)

SUBSYSTEM: INTERIOR PARTITION - ACCORDION/FOLDING
CONTROL NUMBER: GS-II 05.01.05-4

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W. C.Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

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LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1

SUBSYSTEM: INTERIOR PARTITION - CONCRETE
CONTROL NUMBER: GS-III 05.01.01-1

Application

This guide applies to investigation of possible material problems with interior concrete partition walls evidenced by bulging, tilting, cracks, spalling, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the concrete partition wall construction.

2. Analyze inspection data from Level I and II inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

3. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

Special Tools and Equipment

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes

2. Tools for removing disturbed material

3. Tools and material for patching inspection access openings

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1 (Continued)

SUBSYSTEM: INTERIOR PARTITION - CONCRETE
CONTROL NUMBER: GS-III 05.01.01-1

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

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LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 2

SUBSYSTEM: INTERIOR PARTITION - MASONRY/STONE
CONTROL NUMBER: GS-III 05.01.02-2

Application

This guide applies to investigation of possible material problems with interior masonry/stone partition walls evidenced by bulging, tilting, cracks, spalling, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the masonry/stone partition wall construction.

2. Analyze inspection data from Level I and II inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

3. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

Special Tools and Equipment

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes

2. Tools for removing disturbed material

3. Tools and material for patching inspection access openings

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 2 (Continued)

SUBSYSTEM: INTERIOR PARTITION - MASONRY/STONE
CONTROL NUMBER: GS-III 05.01.02-2

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W. C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
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LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 3

SUBSYSTEM: INTERIOR PARTITION - STUD FRAMING
CONTROL NUMBER: GS-III 05.01.03-3

Application

This guide applies to investigation of possible material problems with interior stud frame partition walls evidenced by sagging, deflection, etc. The condition may be the result of settlement, impact damage, moisture, material failure, insect damage, or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the stud frame partition wall construction.

2. Remove surface treatment to expose stud framing.

3. Visually examine studs, plates, tracks, and fasteners and record the results of the detailed inspection.

4. Analyze inspection data from Level I and III inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

5. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 3 (Continued)

SUBSYSTEM: INTERIOR PARTITION - STUD FRAMING
CONTROL NUMBER: GS-III 05.01.03-3

Special Tools and Equipment

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing disturbed material
3. Tools and material for patching inspection access openings

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990
4. Means Illustrated Construction Dictionary, R. S. Means, 1994
5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983
7. Condition Assessment Survey (CAS) Program, Deficiency Standards & Inspections Methods Manual, Vol. 6, Interior Closures, Department of Energy, 1993
8. Means Illustrated Construction Dictionary, R. S. Means, 1994
9. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 3 (Continued)

SUBSYSTEM: INTERIOR PARTITION - STUD FRAMING
CONTROL NUMBER: GS-III 05.01.03-3

References (Continued)

10. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

11. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

12. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 4

SUBSYSTEM: INTERIOR PARTITION - GLASS
CONTROL NUMBER: GS-III 05.01.04-4

Application

This guide applies to investigation of possible material problems with interior glass partition walls evidenced by bulging, tilting, cracks, deflection, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the glass partition wall construction.

2. Analyze inspection data from Level I and II inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

3. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

Special Tools and Equipment

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes

2. Tools for removing disturbed material

3. Tools and material for patching inspection access openings

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 4 (Continued)

SUBSYSTEM: INTERIOR PARTITION - GLASS
CONTROL NUMBER: GS-III 05.01.04-4

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990
4. Means Illustrated Construction Dictionary, R. S. Means, 1994
5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983
7. Condition Assessment Survey (CAS) Program, Deficiency Standards & Inspections Methods Manual, Vol. 6, Interior Closures, Department of Energy, 1993
8. Means Illustrated Construction Dictionary, R. S. Means, 1994
9. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976
10. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
11. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983
12. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 5

SUBSYSTEM: INTERIOR PARTITION - ACCORDION/FOLDING
CONTROL NUMBER: GS-III 05.01.05-5

Application

This guide applies to investigation of possible material problems with interior accordion/folding partition walls evidenced by bulging, sagging, deflection, track/roller damage, cracks, etc. The condition may be the result of settlement, impact damage, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Actions

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the accordion/folding partition wall construction.

2. Analyze inspection data from Level I and II inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

3. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

Special Tools and Equipment

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes

2. Tools for removing disturbed material

3. Tools and material for patching inspection access openings

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 5 (Continued)

SUBSYSTEM: INTERIOR PARTITION - ACCORDION/FOLDING
CONTROL NUMBER: GS-III 05.01.05-5

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

7. Condition Assessment Survey (CAS) Program, Deficiency Standards & Inspections Methods Manual, Vol. 6, Interior Closures, Department of Energy, 1993

8. Means Illustrated Construction Dictionary, R. S. Means, 1994

9. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976

10. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

11. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

12. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

05.02 INTERIOR DOOR

DESCRIPTION

Interior doors are a subsystem of the Building Interior system. Doors are the operating part of the interior partitions that allow access between portions of the building. Their classification and number are determined by the use of the building and the building codes that are in force for that location. Doors serve as part of the building's interior partitions by preventing the intrusion of unwanted noise and unauthorized personnel. Doors are designed to permit the passage of people, including the handicapped or equipment and supplies or both. The primary materials used in the construction of doors are metals, wood, glass, and combinations of these materials.

SPECIAL TOOL AND EQUIPMENT REQUIREMENTS

No special tools are needed for the inspection of the doors, beyond the requirements listed in the Building Interior Standard Tools Section.

SPECIAL SAFETY REQUIREMENTS

No special safety requirements are needed for the inspection of the doors, beyond the requirements listed in the Master Safety Plan and System Safety Section.

COMPONENT LIST

- 05.02.01 INTERIOR DOOR - METAL
- 05.02.02 INTERIOR DOOR - WOOD
- 05.02.03 INTERIOR DOOR - GLASS
- 05.02.04 INTERIOR DOOR - OVERHEAD
- 05.02.05 INTERIOR DOOR - SPECIAL
- 05.02.06 INTERIOR DOOR FRAME - METAL
- 05.02.07 INTERIOR DOOR FRAME - WOOD
- 05.02.08 INTERIOR DOOR/FRAME HARDWARE
- 05.02.09 INTERIOR DOOR AUTOMATIC OPERATORS
- 05.02.10 INTERIOR DOOR/FRAME FINISH

RELATED SUBSYSTEMS

Due to the related nature of the elements requiring inspection, the following should be reviewed for concurrent inspection activities.

05.02	INTERIOR FINISHES
05.04	INTERIOR WINDOWS
05.05	INTERIOR FLOOR/FLOOR COVERING
08.00	BUILDING MECHANICAL (all subsystems)
10.00	BUILDING ELECTRICAL (all subsystems)

05.02 INTERIOR DOOR

STANDARD INSPECTION PROCEDURE

The standard inspection procedure for the Interior Door subsystem is a visual inspection of each door, augmented by a Level II Inspection when required. Very few Level II or III Inspection Keys are indicated for the Building Interior Door subsystem. The inspection should be carried out in order of presentation of the various components. Associated defects and observations are listed which will be presented in the inspector's Data Collection Device.

COMPONENTS

◆ 05.02.01 INTERIOR DOOR - METAL

Hollow metal doors are either panel or flush types. They are constructed primarily of cold-rolled sheet steel especially processed to give a smooth flat surface. Metal doors may be supplied bonded and primed, galvanized and primed, factory-finished in selected colors, or in stainless steel. Doors with lead-lined cores are available for shielded applications.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on door.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression on door.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, loose surface material, joint separation, and material deterioration.	SF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ **05.02.01 INTERIOR DOOR - METAL (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Corrosion:**			
(caused by water damage, etc.)			
Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			
Defect:			
*** Glass Damage:**			
(caused by impact damage, exposure, etc)			
Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing	SF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.02 INTERIOR DOOR - WOOD

Wood doors are manufactured in either flush or panel design, solid or hollow-core. Flush doors have veneers that are exterior-glued and matched in their grain pattern. Panel doors consist of solid wood stiles and rails that make-up the doors structure. The panels are wood veneered plywood. Solid-core construction consists of wood blocking, or particle board core. Solid-core doors are advantageous in fire-rating, radiation protection, strength, and durability. Hollow-core doors can be filled with insulation to improve thermal and acoustical properties.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on door.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of door.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			
Defect:			
* **Glass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing	SF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.03 INTERIOR DOOR - GLASS

Glass doors are frequently used to permit the transmission of interior light and to enhance the visual perception of the occupants. Some glass doors create interior vestibules which have sets of doors to stop the loss of heat from the main building. The glass assemblies include the following components: (1) glass, (2) transoms, and (3) sidelights. The glass in the doors can be single pane, double pane, tempered, or tinted.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on door. ***{Severity L}	SF		
b. Surface material damage evidenced by dents, depression, splitting of door. ***{Severity M}	SF		
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration. ***{Severity H}	SF		
Defect:			
*** Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident). ***{Severity L}	SF		
b. Deterioration evidenced by pitting, or blistering. ***{Severity M}	SF		
c. Deterioration evidenced by holes or loss of metal. ***{Severity H}	SF		

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ **05.02.03 INTERIOR DOOR - GLASS (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Glass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading ***{Severity L}	SF		
b. Damage evidenced by cracks. ***{Severity M}	SF		
c. Glass damage evidenced by missing or broken with holes. ***{Severity H}	SF		
d. Deteriorated or missing glazing ***{Severity H}	LF		

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.04 INTERIOR DOOR - OVERHEAD

Overhead doors are constructed of a single leaf or of multiple leaves, swung up or rolled open from the ground level and assume a horizontal position above the doorway when open. Overhead coiling doors consist of a curtain of interlocking corrugated-steel slats which rolls up on a roller or drum in much the same way as a window shade. Doors can be operated by chain hoist, crank hoist, or electric motors.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on door.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of door.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			
Defect:			
* **Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ **05.02.04 INTERIOR DOOR - OVERHEAD (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Glass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing	SF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.05 INTERIOR DOOR - SPECIAL

The doors in this section are designed for specific and unique applications. Some of the applications include fire rating, thermal/acoustical properties, over-sized openings, special service, and controlled access.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on door.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of door.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			
Defect:			
*** Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ **05.02.05 INTERIOR DOOR - SPECIAL (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Glass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing	SF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.06 INTERIOR DOOR FRAME - METAL

Frames support the doors, anchor the hardware, and present a finished appearance by forming a transition between the door and the wall. Metal frames may be supplied in various gauges of galvanized or plain steel in knockdown standard frames or welded customized frames that can be fabricated to satisfy most design conditions. Frames may be wrap around (enclosing the wall) or butt up against the opening. Frames are normally reinforced at stress points and are prepared for hardware. Frames are attached to the walls with anchors which are supplied to suit the wall construction requirements.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, etc.)			
Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on frame.	LF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression on frame.	LF		
***{Severity M}			
c. Surface material damage evidenced by holes, delamination, loose surface material, material deterioration, joint separation	LF		
***{Severity H}			
Defect:			
* **Corrosion:** (caused by water damage, etc.)			
Observation:			
a. Surface deterioration (no pitting evident).	LF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	LF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	LF		
***{Severity H}			
Defect:			
* **Misalignment:** (caused by impact damage, use, building settlement, etc.)			
Observation:			
a. Noticeable misalignment, not allowing the door/window to open or close.	LF		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.07 INTERIOR DOOR FRAME - WOOD

Frames support the doors, anchor the hardware, and present a finished appearance by forming a transition between the door and the wall. Wood frames are made of various species that complement the door and the interior finish. Frames may be wrap around (enclosing the wall) or butt up against the opening. Frames are normally reinforced at stress points and are prepared for hardware. Frames are attached to the walls with anchors which are supplied to suit the wall construction requirements.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on frame. ***{Severity L}	LF		
b. Surface material damage evidenced by depression, splitting of frame. ***{Severity M}	LF		
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, material deterioration, joint separation ***{Severity H}	LF		
Defect:			
*** Misalignment:** (caused by impact damage, use, building settlement, etc.) Observation:			
a. Noticeable misalignment, not allowing the door/window to open or close. ***{Severity H}	LF		

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.08 INTERIOR DOOR/FRAME HARDWARE

Hardware is mounted to doors and frames to facilitate hanging, operating, closing, locking, sealing, or protecting.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Defective Operation:** (caused by impact damage, wear, and use) Observation:			
a. Window hardware operates poorly (sticks, hard to turn, etc).	EA		
***{Severity M}			
b. Fails to perform intended operation. (Door does not open/close lock/latch)	EA	1	
***{Severity H}			
Defect:			
* **Physical Damage:** (caused by impact damage, wear, and use) Observation:			
a. Loose, worn, or misaligned. Requires tightening or adjusting.	EA		
***{Severity L}			
b. Broken or missing hardware.	EA		
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.09 INTERIOR DOOR AUTOMATIC OPERATOR

Automatic operators are mounted to doors and frames to facilitate operating, closing, locking, sealing, or protecting and typically utilize a control mechanism (sensor or switch) coupled with an operating or locking mechanism.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Physical Damage:** (caused by impact damage, wear, and use) Observation:			
a. Loose, worn, or misaligned. Requires tightening or adjusting.	EA		
***{Severity L}			
b. Broken or missing.	EA		
***{Severity H}			
Defect:			
*** Sensor/Switch Broken or Inoperative:** Observation:			
a. Sensor or switch is difficult to activate.	EA	2	
***{Severity M}			
b. Sensor or switch does not operate door opener or lock.	EA	2	1
***{Severity H}			
Defect:			
*** Opener/Actuator Working Improperly:** Observation:			
a. Opener/actuator works but grinds, catches or otherwise displays signs of poor operation (operator/actuator travel is not impaired).	EA		
***{Severity L}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ **05.02.09 INTERIOR DOOR AUTOMATIC OPERATOR (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Opener/Actuator Working Improperly (Continued):**			
b. Opener/actuator works but grinds, catches or otherwise displays signs of poor operation and operator/actuator travel is impaired (door/lock does not completely open or close).	EA	2	1
***{Severity H}			
c. Opener/actuator does not work causing the door/lock to be inoperative.	EA	2	1
***{Severity H}			

05.02 INTERIOR DOOR

COMPONENTS (Continued)

◆ 05.02.10 INTERIOR DOOR/FRAME FINISH

Finishes are applied as a thin layer of coating to a substrate by brush, roller, sprayer, or other suitable method. The coating seals, protects, or provides the desired appearance.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Finish Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, exposure, etc.) Observation:			
a. Finish damage evidenced by mars, scratches, scuffs, fading, and discoloration of finish.	SF		
***{Severity L}			
b. Finish material damage evidenced by exposure of substrate.	SF		
***{Severity H}			

05.02 INTERIOR DOOR

REFERENCES

1. Means Illustrated Construction Dictionary, R. S. Means, 1994

2. Automatic Swinging and Sliding Doors, Stanley Magic-Door, Division of The Stanley Works 1991

3. Automatic Sliding and Swinging Doors, Horton Automatics, Overhead Door Corporation of Texas, 1991

05.02 INTERIOR DOOR

LEVEL II KEY	GUIDE SHEET CONTROL NUMBER
1	GS-II 05.02.08-1
2	GS-II 05.02.09-2

LEVEL III KEY	GUIDE SHEET CONTROL NUMBER
1	GS-III 05.02.09-1

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1

COMPONENT: INTERIOR DOOR/FRAME HARDWARE
CONTROL NUMBER: GS-II 05.02.08-1

Application

This guide applies to investigation of improper operation of special use doors such as overhead, coiling, sectional, swung, revolving, rolling, darkroom, cold storage, and folding partitions and associated door hardware. Improper operation of the door/hardware may be due to impact damage, wear and/or use.

Special Safety Requirements

Inspections where this unique door hardware apply may present hazards in examining tracks, rollers, chains, cables, coil springs, pulleys and other special mechanical devices. Caution should be used in inspecting and operating these special doors and hardware.

Inspection Action

Results of LEVEL I inspection indicate a deficiency in door/hardware operation. Although LEVEL I inspection methodology is very useful for determining the operating condition, the LEVEL II inspection provides a more thorough analysis of the cause of malfunction. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Operate door through full operating range several times.

2. Observe movement of rollers, chains, cables, spring, coils, pulleys, etc. to determine deficiency.

3. Modify information in Data Collection Device to reflect the condition observed through level II inspection.

Special Tools and Equipment Requirements

None

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1 (Continued)

COMPONENT: INTERIOR DOOR/FRAME HARDWARE
CONTROL NUMBER: GS-II 05.02.08-1

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

7. Automatic Swinging and Sliding Doors, Stanley Magic-Door, Division of The Stanley Works 1991

8. Automatic Sliding and Swinging Doors, Horton Automatics, Overhead Door Corporation of Texas, 1991

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2

COMPONENT: INTERIOR DOOR AUTOMATIC OPERATORS
CONTROL NUMBER: GS-II 05.02.09-2

Application

This guide applies to investigation of improper operation of special use doors such as overhead, coiling, sectional, swung, revolving, rolling, darkroom, cold storage, and folding partitions and associated door hardware, controls, sensors, and switches. Improper door/hardware operation may be due to impact damage, wear and/or use and electrical deficiencies.

Special Safety Requirements

Inspections where this unique door hardware and electrical control mechanisms apply may present hazards in examining tracks, rollers, chains, cables, coil springs, pulleys and other special mechanical and electrical devices. Caution should be used in inspecting and operating these special doors, hardware, and electrical control devices.

Inspection Action

Results of LEVEL I inspection indicate a deficiency in door/hardware/electrical control operation. Although LEVEL I inspection methodology is very useful for determining the operating condition, the LEVEL II inspection provides a more thorough analysis of the cause of malfunction. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Operate door through full operating range several times.

2. Observe movement of rollers, chains, cables, spring, coils, pulleys, sensors, actuators, switches, etc. to determine deficiency.

3. Modify information in Data Collection Device to reflect the condition observed through level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2 (Continued)

COMPONENT: INTERIOR DOOR AUTOMATIC OPERATORS
CONTROL NUMBER: GS-II 05.02.09-2

References

1. Automatic Swinging and Sliding Doors, Stanley Magic-Door, Division of The Stanley Works 1991

2. Automatic Sliding and Swinging Doors, Horton Automatics, Overhead Door Corporation of Texas, 1991

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1

COMPONENT: INTERIOR DOOR AUTOMATIC OPERATORS
CONTROL NUMBER: GS-III 05.02.09-1

Application

This guide applies to investigation of improper operation of special use doors such as overhead, coiling, sectional, swung, revolving, rolling, darkroom, cold storage, and folding partitions and associated door hardware, controls, sensors, and switches. Improper door/hardware operation may be due to impact damage, wear and/or use and electrical deficiencies.

Special Safety Requirements

Inspections where this unique door hardware and electrical control mechanisms apply may present hazards in examining tracks, rollers, chains, cables, coil springs, pulleys and other special mechanical and electrical devices. Caution should be used in inspecting and operating these special doors, hardware, and electrical control devices.

Inspection Action

Level III inspection requires the expertise of an individual that is trained in the inspection and operation of the special use doors/hardware and electrical control systems to further assess the extent of the component defect.

1. Review facility data files (Operation & Maintenance Manuals) to determine manufacture and technical specification related to the component.

2. Analyze inspection data from Level I and II inspection, in conjunction with Operation & Maintenance Manuals, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or manufacture's representative.

3. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

Special Tools and Equipment Requirements

Electrical Testing Equipment as required.

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1 (Continued)

COMPONENT: INTERIOR DOOR AUTOMATIC OPERATORS
CONTROL NUMBER: GS-III 05.02.09-1

References

1. Means Illustrated Construction Dictionary, R. S. Means, 1994

2. Automatic Swinging and Sliding Doors, Stanley Magic-Door, Division of The Stanley Works 1991

3. Automatic Sliding and Swinging Doors, Horton Automatics, Overhead Door Corporation of Texas, 1991

05.03 INTERIOR WINDOW

DESCRIPTION

Interior windows are openings in a partition of a building to provide any or all of the following: natural light, natural ventilation, and vision. They must also provide protection against entry. The principal parts of window units include interior trim stool and apron, frame, sash, casing, screen, and storm sash.

SPECIAL TOOL AND EQUIPMENT REQUIREMENTS

No special tools are needed for the inspection of the windows, beyond the requirements listed in the Building Interior Standard Tools Section.

SPECIAL SAFETY REQUIREMENTS

No special safety requirements are needed for the inspection of the windows, beyond the requirements listed in the Master Safety Plan and System Safety Section.

COMPONENT LIST

- 05.03.01 INTERIOR WINDOW - METAL
- 05.03.02 INTERIOR WINDOW - WOOD
- 05.03.03 INTERIOR PLEXIGLASS - METAL
- 05.03.04 INTERIOR PLEXIGLASS - WOOD
- 05.03.05 INTERIOR WINDOW FRAME - METAL
- 05.03.06 INTERIOR WINDOW FRAME - WOOD
- 05.03.07 INTERIOR WINDOW/FRAME HARDWARE
- 05.03.08 INTERIOR WINDOW/FRAME FINISH

RELATED SUBSYSTEMS

Due to the related nature of the elements requiring inspection, the following DS/IM's should be reviewed for concurrent inspection activities.

05.01 INTERIOR PARTITION

STANDARD INSPECTION PROCEDURE

The standard inspection method for this subsystem is a Level I visual inspection of the windows, augmented by a Level II Inspection when required. The inspection should be carried out in order of presentation of the various components. Associated defects and observations are listed which will be presented in the inspector's Data Collection Device.

05.03 INTERIOR WINDOW

COMPONENTS

◆ 05.03.01 INTERIOR WINDOW - METAL

Metals used for window construction are aluminum, steel, bronze, and stainless steel.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on window. ***{Severity L}	SF		
b. Surface material damage evidenced by dents, depression, splitting of window. ***{Severity M}	SF		
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration. ***{Severity H}	SF		
Defect:			
* **Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident). ***{Severity L}	SF		
b. Deterioration evidenced by pitting, or blistering. ***{Severity M}	SF		
c. Deterioration evidenced by holes or loss of metal. ***{Severity H}	SF		

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ **05.03.01 INTERIOR WINDOW - METAL (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Glass Damage:**			
(caused by impact damage, exposure, etc)			
Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing	LF		
***{Severity H}			
Defect:			
*** Defective Operation:**			
(caused by impact damage, wear, swell, finish and use)			
Observation:			
a. Finish (painting) has made window inoperable.	SF		
***{Severity L}			
b. Impact damage or wear makes window difficult to operate.	SF		
***{Severity M}			
c. Impact damage or wear prevents window from operating (opening/closing).	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ 05.03.02 INTERIOR WINDOW - WOOD

Wood windows are used extensively in many types of buildings when not excluded by the fire-resistive requirements of building codes.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on window.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of window.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			
Defect:			
*** Glass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ **05.03.02 INTERIOR WINDOW - WOOD (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Defective Operation:** (caused by impact damage, wear, swell, finish and use) Observation:			
a. Finish (painting) has made window inoperable.	SF		
***{Severity L}			
b. Swelling has made windows inoperable.	SF		
***{Severity L}			
c. Impact damage or wear makes window difficult to operate.	SF		
***{Severity M}			
d. Impact damage to wear prevents window from operating (opening/closing).	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ 05.03.03 INTERIOR PLEXIGLASS - METAL

Metal plexiglass windows are used in many types of buildings when not excluded by the requirements of building codes. Shop and mechanical areas, recreation rooms and other facilities where glass posses a danger, utilize plexiglass instead of glass.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, etc.)			
Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on window.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of window.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			
Defect:			
*** Corrosion:** (caused by water damage, etc.)			
Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ **05.03.03 INTERIOR PLEXIGLASS - METAL (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Plexiglass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			

Defect:

*** Defective Operation:** (caused by impact damage, wear, swell, finish and use) Observation:

a. Finish (painting) has made window inoperable.	SF		
***{Severity L}			
b. Impact damage or wear makes window difficult to operate.	SF		
***{Severity M}			
c. Impact damage or wear prevents window from operating (opening/closing).	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ 05.03.04 INTERIOR PLEXIGLASS - WOOD

Wood plexiglass windows are used in many types of buildings when not excluded by the requirements of building codes. Shop and mechanical areas, recreation rooms and other facilities where glass posses a danger, utilize plexiglass instead of glass.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Defective Operation:** (caused by impact damage, wear, swell, finish and use) Observation:			
a. Finish (painting) has made window inoperable.	SF		
***{Severity L}			
b. Swelling has made windows inoperable.	SF		
***{Severity L}			
c. Impact damage or wear makes window difficult to operate.	SF		
***{Severity M}			
d. Impact damage to wear prevents window from operating (opening/closing).	SF		
***{Severity H}			
Defect:			
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on window.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of window.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ **05.03.04 INTERIOR PLEXIGLASS - WOOD (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Plexiglass Damage:**			
(caused by impact damage, exposure, etc)			
Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Damage evidenced by missing glass or broken with holes.	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ 05.03.05 INTERIOR WINDOW FRAME - METAL

Frames supports the windows, anchor the hardware, and present a finished appearance by forming a transition between the window and the wall. Metal frames may be supplied in various gauges of galvanized or plain steel in knockdown standard frames or welded customized frames that can be fabricated to satisfy most design conditions. Frames may be wrap around (enclosing the wall) or butt up against the opening. Frames are normally reinforced at stress points and are prepared for hardware. Frames are attached to the walls with anchors which are supplied to suit the wall construction requirements.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on frame. ***{Severity L}	LF		
b. Surface material damage evidenced by dents, depression on frame. ***{Severity M}	LF		
c. Surface material damage evidenced by holes, delamination, loose surface material, material deterioration, joint separation. ***{Severity H}	LF		
Defect:			
* **Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident). ***{Severity L}	LF		
b. Deterioration evidenced by pitting, or blistering. ***{Severity M}	LF		
c. Deterioration evidenced by holes or loss of metal. ***{Severity H}	LF		

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ **05.03.05 INTERIOR WINDOW FRAME - METAL (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Misalignment:** (caused by impact damage, use, building settlement, etc.) Observation:			
a. Noticeable misalignment, not allowing the door/window to open or close.	LF		
***{Severity H}			

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ 05.03.06 INTERIOR WINDOW FRAME - WOOD

Frames support the windows, anchor the hardware, and present a finished appearance by forming a transition between the window and the wall. Wood frames are made of various species that complement the door or window and the interior finish. Frames are normally reinforced at stress points and are prepared for hardware. Frames are attached to the walls with anchors which are supplied to suit the wall construction requirements.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on frame. ***{Severity L}	LF		
b. Surface material damage evidenced by depression, splitting of frame. ***{Severity M}	LF		
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, material deterioration, joint separation. ***{Severity H}	LF		
Defect:			
*** Misalignment:** (caused by impact damage, use, building settlement, etc.) Observation:			
a. Noticeable misalignment, not allowing the door/window to open or close. ***{Severity H}	LF		

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ 05.03.07 INTERIOR WINDOW/FRAME HARDWARE

Hardware is mounted to doors and frames to facilitate hanging, operating, closing, locking, sealing, or protecting.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Defective Operation:** (caused by impact damage, wear, swell, finish and use) Observation:			
a. Window hardware operates poorly (sticks, hard to turn, etc). ***{Severity M}	EA		
b. Fails to perform intended operation. (Window does not open/close/lock) ***{Severity H}	EA		
Defect:			
* **Physical Damage:** (caused by impact damage, wear, and use) Observation:			
a. Loose, worn, or misaligned. Requires tightening or adjusting. ***{Severity L}	EA		
b. Broken or missing. ***{Severity H}	EA		

05.03 INTERIOR WINDOW

COMPONENTS (Continued)

◆ 05.03.08 INTERIOR WINDOW/FRAME FINISH

Finishes are applied as a thin layer of coating to a substrate by brush, roller, sprayer, or other suitable method. The coating seals, protects, or provides the desired appearance.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Finish Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, exposure, etc.) Observation:			
a. Finish damage evidenced by mars, scratches, scuffs, fading, and discoloration.	SF		
***{Severity L}			
b. Finish material damage evidenced by exposure of substrate	SF		
***{Severity H}			

05.03 INTERIOR WINDOW

REFERENCES

1. Building Construction Materials and Types of Construction, D. C. Ellison, W. C.Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

7. Condition Assessment Survey (CAS) Program, Deficiency Standards & Inspections Methods Manual, Vol. 6, Interior Closures, Department of Energy, 1993

8. Means Illustrated Construction Dictionary, R. S. Means, 1994

9. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976

10. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

11. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

12. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

05.03 INTERIOR WINDOW

LEVEL II KEYS	GUIDE SHEET CONTROL NUMBER

N/A

LEVEL III KEYS	GUIDE SHEET CONTROL NUMBER

N/A

05.04 INTERIOR FLOOR

DESCRIPTION

Floors are an important functional subsystem of a building. They are the primary wearing surface which is subject to abrasive wear and tear as a result of the occupants, furnishing, and equipment use. Their function is to provide for some or all of the following: skid-resistance, sanitation, noise reduction, fire resistance, minimal deflection (caused by loading), and provide a level surface for the specified finish.

Interior floors provide certain performance requirements which usually include: (1) adequate strength to support dead loads (the actual weight of the materials used in the floor assembly, and live loads (such as occupants and furnishings), (2) provisions for lateral support of walls, (3) satisfactory resistance to the transmission of airborne and structure-borne sound, (4) suitable fire resistance, and (5) suitability for the application of finish materials.

SPECIAL TOOL AND EQUIPMENT REQUIREMENTS

No special tools are needed for the inspection of the interior floors, beyond the requirements listed in the Building Interior Standard Tools Section.

SPECIAL SAFETY REQUIREMENTS

No special safety requirements are needed for the inspection of the interior floors, beyond the requirements listed in the Master Safety Plan and System Safety Section.

COMPONENT LIST

- 05.04.01 INTERIOR FLOOR - CONCRETE
- 05.04.02 INTERIOR FLOOR - WOOD
- 05.04.03 INTERIOR FLOOR - METAL
- 05.04.04 INTERIOR FLOOR COVERING - CARPET
- 05.04.05 INTERIOR FLOOR COVERING - CERAMIC TILE
- 05.04.06 INTERIOR FLOOR COVERING - SOFT TILE
- 05.04.07 INTERIOR FLOOR COVERING - WOOD INLAY
- 05.04.08 INTERIOR ACCESS FLOOR
- 05.04.09 INTERIOR FLOOR - STONE/MASONRY
- 05.04.10 INTERIOR FLOOR FINISH

RELATED SUBSYSTEMS

Due to the related nature of the elements requiring inspection, the following DS/IM's should be reviewed for concurrent inspection activities.

01.02	SLABS ON GRADE
02.02	FLOOR FRAMING & DECKS

05.04 INTERIOR FLOOR

STANDARD INSPECTION PROCEDURE

The standard inspection procedure for this subsystem is a Level I visual inspection of the floors , augmented by a Level II Inspection when required. The inspection should be carried out in order of presentation of the various components. Associated defects and observations are listed which will be presented in the inspector's Data Collection Device.

COMPONENTS

◆ 05.04.01 INTERIOR FLOOR - CONCRETE

Concrete floors are inelastic and are made of up a mixture of aggregates, water, and portland cement. The concrete can also incorporate color and texture to offer a more attractive floor. Exposed concrete floors are usually located in warehouse, shops, and mechanical/electrical/equipment rooms. Reference 02.02 Building Floor Framing and Decks to inspect the structural aspects of concrete floors.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by scratches or hairline cracks to surface of floor.	SF		
***{Severity L}			
b. Surface damage evidenced by stains or graffiti on floor.	SF		
***{Severity L}			
c. Surface material damage evidenced by spalling, cracks, or chips in surface of floor.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, spalling, or fault which allow air or moisture to penetrate the floor.	SF	1	1
***{Severity H}			

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.02 INTERIOR FLOOR - WOOD

Wood floors can be sheet (plywood), strips, or planks. There are many types of lumber that are used in wood floors: oak, pine, maple, beech, birch, cypress, gum, fir, and walnut. Reference 02.02 Building Floor Framing and Decks to inspect the structural aspects of wood floors.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by stains, scratches, mars or scuffs on floors.	SF		
***{Severity L}			
b. Surface material damage evidenced by splitting, cracking, joint separation or worn, scarred surface of floor.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, delamination, loose, buckled, missing or deflecting material.	SF		2
***{Severity H}			

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.03 INTERIOR FLOOR - METAL

Metal floor is a framework or grate like arrangement of bars that are parallel or crossed, used to provide a floor system for intermediate mechanical/electrical/equipment rooms, warehouse storage, mezzanines and walkway for service areas. Reference 02.02 Building Floor Framing and Decks to inspect the structural aspects of metal flooring.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance, deterioration, building settlement etc.) Observation:			
a. Surface material damage evidenced by bent members or joint separation. ***{Severity M}	SF		
b. Surface material damage evidenced by cracks, broken welds, loose, missing, or deflecting material. ***{Severity H}	SF		3
Defect:			
*** Corrosion:** (caused by water/chemical damage, etc.) Observation:			
a. Surface deterioration (no pitting evident). ***{Severity L}	SF		
b. Deterioration evidenced by pitting, or blistering. ***{Severity M}	SF		
c. Deterioration evidenced by holes or loss of metal. ***{Severity H}	SF		

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

♦ 05.04.04 INTERIOR FLOOR COVERING - CARPET

Carpet is manufactured in fiber, styles, and patterns to meet almost any flooring requirement, indoors or out, except for rooms that need thorough sanitation, such as hospital rooms, food processing facilities, and toilet rooms. Carpet is either glued directly to the floor deck, or stretched over a carpet pad and attached around the perimeter of the room by means of a tackless strip. Carpet has different resistances to fire, crushing, staining and wear based on the desired application. In order for the carpet to cover the entire space, the carpet requires seaming which utilizes seaming tape.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, wear, water intrusion, etc.) Observation:			
a. Surface damage evidenced by dirt or stains on carpet.	SF		
***{Severity L}			
b. Surface material damage evidenced by seam separation, worn or loose material.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, ripped, torn or missing material.	SF		
***{Severity H}			

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

♦ 05.04.05 INTERIOR FLOOR COVERING - CERAMIC TILE

Hard tile finish flooring materials are often chosen for their resistance to wear and moisture. Installation is a relatively simple, but highly skilled procedure of bedding the material in mortar or adhesive and filling the joints with grout. Most hard tile treatments are coated with multiple applications of a clear sealer compound, and are waxed for maintenance.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, wear, cracking, deterioration, building settlement etc.)			
Observation:			
a. Surface damage evidenced by scratches, stains, or hairline cracking to tile surface.	SF		
***{Severity L}			
b. Surface material damage evidenced by spalling, cracks, or chips in tile surface.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, spalling, or fault allowing moisture to penetrate the floor.	SF		
***{Severity H}			
Defect:			
*** Grout Deterioration:** (caused by wear, water intrusion, building settlement, etc.)			
Observation:			
a. Grout deterioration evidenced by hairline cracks or soft joints.	SF		
***{Severity M}			
b. Grout deterioration evidenced by cracks, loose or missing.	SF		
***{Severity H}			

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.06 INTERIOR FLOOR COVERING - SOFT TILE

Soft tile surface treatments have a high resistant to indentations, as well as low maintenance requirements and are available in either sheet or tiles. The tiles are adhered to the floor system.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, wear, water intrusion, etc.) Observation:			
a. Surface damage evidenced by dirt or stains on tile.	SF		
***{Severity L}			
b. Surface material damage evidenced by seam separation, worn or loose material.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, ripped, torn or missing material.	SF		
***{Severity H}			

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.07 INTERIOR FLOOR COVERING - WOOD INLAY

Wood surface treatment can be utilized throughout a building. Fabricated wood block flooring consists of small square or rectangular blocks formed by fastening short pieces of wood strips together. The blocks have tongue and grooved joints at the perimeter of the block that connects individual blocks.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by stains, scratches, mars or scuffs. ***{Severity L}	SF		
b. Surface material damage evidenced by splitting, cracking, joint separation or worn, scarred surface. ***{Severity M}	SF		
c. Surface material damage evidenced by holes, delamination, loose, buckled or missing material. ***{Severity H}	SF		

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.08 INTERIOR ACCESS FLOOR

Raised access flooring provides unlimited capacity for wiring, piping and duct work. The space below the flooring can serve as a plenum for air distribution. Changes in any of the underfloor systems are easily made to accommodate electrical distribution and air diffusers/ returns. The floor system is supported by metal pedestals or frame.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by stains, scratches, mars or scuffs. ***{Severity L}	SF		
b. Surface material damage evidenced by splitting, cracking, joint separation or worn, scarred surface. ***{Severity M}	SF		
c. Surface material damage evidenced by holes, delamination, loose, buckled, missing, or deflecting material. ***{Severity H}	SF	2	

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.08 INTERIOR FLOOR - STONE/MASONRY

The surface treatments in this section are designed for specific and unique applications. Usually the treatments are used in heavy traffic areas to withstand the exceptionally high wear on the surface treatment, at the same time providing a unique appearance.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, wear, deterioration, building settlement etc.) Observation:			
a. Surface damage evidenced by scratches, stains, or hairline cracks to surface.	SF		
***{Severity L}			
b. Surface material damage evidenced by spalling, cracks, or chips in surface.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, spalling, or fault allowing moisture to penetrate the floor.	SF		
***{Severity H}			
Defect:			
*** Mortar/Grout Deterioration:** (caused by wear, water intrusion, building settlement, etc.) Observation:			
a. Mortar/grout deterioration evidenced by hairline cracks or soft joints.	SF		
***{Severity M}			
b. Mortar/grout deterioration evidenced by cracks, loose or missing.	SF		
***{Severity H}			

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.09 INTERIOR FLOOR FINISH

Finishes are applied as a thin layer of coating to the surface treatment or floor by brush, roller, sprayer, or other suitable method. The coating seals, protects, or provides the desired appearance.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Finish Damage:** (caused by impact damage, previous maintenance patching, water intrusion, wear, etc.) Observation:			
a. Finish damage evidenced by mars, stains, scratches, scuffs, fading, and discoloration.	SF		
***{Severity L}			
b. Finish damage evidenced by exposure of substrate.	SF		
***{Severity H}			

05.04 INTERIOR FLOOR

COMPONENTS (Continued)

◆ 05.04.10 INTERIOR FLOOR JOINT SEALER AND CAULKING

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Sealant Damage:**			
Observation:			
a. Sealant deterioration - hardening of sealant and caulking	LF		
***{Severity L}			
b. Sealant deterioration - shrinking, cracking or missing sealant	LF		
***{Severity H}			

05.04 INTERIOR FLOOR

REFERENCES

1. Building Construction Materials and Types of Construction, D. C. Ellison, W. C.Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

05.04 INTERIOR FLOOR

LEVEL II KEY	GUIDE SHEET CONTROL NUMBER
1	GS-II 05.04.01-1
2	GS-II 05.04.08-2

LEVEL III KEY	GUIDE SHEET CONTROL NUMBER
1	GS-III 05.04.01-1
2	GS-III 05.04.02-2
3	GS-III 05.04.03-3

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1

COMPONENT: INTERIOR FLOOR - CONCRETE
CONTROL NUMBER: GS-II 05.04.01-1

Application

This guide applies to investigation of possible material problems with interior concrete floors evidenced by deflection, movement, uneven surface, cracks, spalling, etc. The condition may be the result of settlement, overloading, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Action

Results of LEVEL I inspection indicate a deficiency in the concrete floor structure. Although LEVEL I inspection methodology is very useful for determining the general condition of the floor, the LEVEL II inspection provides a more thorough analyses of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Probe with screw driver and or tap with hammer to determine the extent of deterioration in terms of the depth, and gross dimension of the surface area exhibiting a deficiency.

2. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1 (Continued)

COMPONENT: INTERIOR FLOOR - CONCRETE
CONTROL NUMBER: GS-II 05.04.01-1

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990
4. Means Illustrated Construction Dictionary, R. S. Means, 1994
5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983
7. Condition Assessment Survey (CAS) Program, Deficiency Standards & Inspections Methods Manual, Vol. 6, Interior Closures, Department of Energy, 1993
8. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976
9. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
10. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983
11. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2

COMPONENT: INTERIOR ACCESS FLOOR
CONTROL NUMBER: GS-II 05.04.08-2

Application

This guide applies to investigation of special floor such as computer room floors. Deficiencies are evidenced by deflection, movement, uneven surface, cracks, etc. The condition may be the result of settlement, overloading, moisture, insect damage, material failure or improper use of material.

Special Safety Requirements

Inspections covering unique floor systems may present hazards due to lifting floor panels and exposure to electrical cabling located under and adjacent to floor panels. Caution should be used in inspecting access flooring. Additional requirements for the performance of the Level II inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Results of LEVEL I inspection indicate a deficiency in the access floor structure. Although LEVEL I inspection methodology is very useful for determining the general condition of the floor, the LEVEL II inspection provides a more thorough analysis of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Remove panels which exhibit a deficiency

2. Examine support and panels to determine possible cause of deficiency.

3. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2 (Continued)

COMPONENT: INTERIOR ACCESS FLOOR
CONTROL NUMBER: GS-II 05.04.08-2

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Allen wrenches

2. Lifting pads

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1

COMPONENT: INTERIOR FLOOR - CONCRETE
CONTROL NUMBER: GS-III 05.04.01-1

Application

This guide applies to investigation of possible material problems with interior concrete floors evidenced by deflection, uneven surface, cracks, spalling, etc. The condition may be the result of settlement, overloading, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the concrete floor construction related to the component.

2. Analyze inspection data from Level I and II inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

3. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1 (Continued)

COMPONENT: INTERIOR FLOOR - CONCRETE
CONTROL NUMBER: GS-III 05.04.01-1

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing disturbed material
3. Tools and material for patching inspection access openings

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990
4. Means Illustrated Construction Dictionary, R. S. Means, 1994
5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983
7. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976
8. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
9. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983
10. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 2

COMPONENT: INTERIOR FLOOR - WOOD
CONTROL NUMBER: GS-III 05.04.02-2

Application

This guide applies to investigation of possible material problems with interior wood floors evidenced by deflection, movement, uneven surface, cracks, etc. The condition may be the result of settlement, overloading, moisture, insect damage, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the wood floor construction related to the component.

2. Remove surface treatment and wood to expose the structural framing.

3. Visually examine joists, trusses, beams, and fasteners and record the results of the detailed inspection.

4. Analyze inspection data from Level I inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

5. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing disturbed material
3. Tools and material for patching inspection access openings

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 2 (Continued)

COMPONENT: INTERIOR FLOOR - WOOD
CONTROL NUMBER: GS-III 05.04.02-2

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

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9. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

10. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 3

COMPONENT: INTERIOR FLOOR - METAL
CONTROL NUMBER: GS-III 05.04.03-3

Application

This guide applies to investigation of possible material problems with interior metal floors evidenced by deflection, movement, cracks, etc. The condition may be the result of settlement, overloading, moisture, material failure or improper use of material.

Special Safety Requirements

No special safety requirements are needed for the performance of the Level II inspection beyond those required in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the metal floor construction related to the component.

2. Analyze inspection data from Level I inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

3. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes

2. Tools for removing disturbed material

3. Tools and material for patching inspection access openings

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 3 (Continued)

COMPONENT: INTERIOR FLOOR - METAL
CONTROL NUMBER: GS-III 05.04.03-3

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

7. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976

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9. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

10. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

05.05 INTERIOR CEILING

DESCRIPTION

Ceilings are a subsystem of Building Interior. They are an interior sheathing on an overhead surface in the building. Ceilings have numerous functions: diffuses light, sound/acoustic barrier, fire resistance, plenum spaces for mechanical/ electrical systems, and providing a surface for the finish to be applied.

SPECIAL TOOL AND EQUIPMENT REQUIREMENTS

No special tools are needed for the inspection of the interior ceilings, beyond the requirements listed in the Building Interior Standard Tools Section.

SPECIAL SAFETY REQUIREMENTS

No special safety requirements are needed for the inspection of the interior ceilings, beyond the requirements listed in the Master Safety Plan and the Building Interior Safety Section.

COMPONENT LIST

- 05.05.01 CEILING - DRYWALL
- 05.05.02 CEILING - PLASTER
- 05.05.03 CEILING - WOOD
- 05.05.04 CEILING - TILE
- 05.05.05 CEILING - METAL
- 05.05.06 CEILING - GLASS
- 05.05.07 CEILING FINISH
- 05.05.08 CEILING FINISH - COVERING

RELATED SUBSYSTEMS

Due to the related nature of the elements requiring inspection, the following DS/IM's should be reviewed for concurrent inspection activities.

02.00	BUILDING SUPERSTRUCTURE
05.01	INTERIOR PARTITIONS

STANDARD INSPECTION PROCEDURE

The standard inspection procedure for this subsystem is a Level I visual inspection of the ceiling, augmented by a Level II Inspection when required. Some inspections may require the use of a ladder or similar device. The inspection should be carried out in order of presentation of the various components. Associated defects and observations are listed which will be presented in the inspector's Data Collection Device.

05.05 INTERIOR CEILING

COMPONENTS

◆ 05.05.01 CEILING - DRYWALL

Drywall is a gypsum based product that is produced in sheets. The core of the gypsum sheet is a mixture of calcined gypsum, starch, water, pregenerated foam, and various additives. The core is sandwiched between faces of paper that provides the surface of the sheet. Drywall is easily installed to the ceiling structure or framing elements. It can be either nailed, glued, or screwed. The sheets then require the joints and fastener heads to be taped and bedded which, when completed, hide any imperfections, and the ceiling appears to be one entire sheet of drywall. Reference 02.03 Roof Framing & Decks to inspect the structural aspects of the ceiling. (The term "Sheetrock" is a registered trademark of one manufacturer of gypsum board, and should not be used in a generic sense).

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on ceiling.	SF		
***{Severity L}			
b. Surface damage evidenced by stains or efflorescence on ceiling.	SF		
***{Severity L}			
c. Surface material damage evidenced by dents, depression, joint separation in ceiling.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, delamination, sagging, loose or missing surface material, and material deterioration which exposes the substrate.	SF		1
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ 05.05.02 CEILING - PLASTER

Plastering is a generic term that refers to any of a number of cementitious substances that are applied to a surface in a paste form. Plaster is usually applied directly to a group of plaster bases know as lath, which are attached to the ceiling structure. Plaster may be applied either by machine (spray) or by hand (trowel or float). Reference 02.03 Roof Framing & Decks to inspect the structural aspects of the ceiling.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, lath separation, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on ceiling. ***{Severity L}	SF		
b. Surface damage evidenced by stains or efflorescence on ceiling. ***{Severity L}	SF		
c. Surface material damage evidenced by dents, depression, hairline cracks in the ceiling. ***{Severity M}	SF		
d. Surface material damage evidenced by holes, cracks, loose, or missing surface material, and material deterioration which exposes the substrate. ***{Severity H}	SF		
e. Surface damage evidenced by lath separation or misalignment from structure. ***{Severity H}	SF		2

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ 05.05.03 CEILING - WOOD

The most commonly used species of wood used for ceilings is pine, cedar, redwood, fir, oak, walnut and mahogany. Interior ceilings may be covered with sheets or boards that are nailed to the ceiling structure. Ceilings can be purchased with factory finishes or may be finished in the field. Reference 02.03 Roof Framing & Decks to inspect the structural aspects of the ceiling.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on ceiling.	SF		
***{Severity L}			
b. Surface damage evidenced by stains, graffiti on ceiling.	SF		
***{Severity L}			
c. Surface material damage evidenced by dents, depression, splitting, joint separation in ceiling.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, loose, sagging or missing surface material, and material deterioration which exposes the substrate.	SF		3
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ 05.05.04 CEILING - TILE

Tile ceilings can be either mounted directly to the ceiling structure or suspended below the ceiling structure. The ceiling tiles that are mounted directly to the ceiling can be either glued or stapled to the ceiling structure or furring channels or strips. The ceiling tiles that are installed below the structure are laid into a metal or vinyl grid channel system that is laid out to fit the size of tile. The grid system is suspended from the structure with wires. With this ceiling system, mechanical and electrical systems can be contained entirely in the plenum space that it creates. Reference 02.03 Roof Framing & Decks to inspect all the structural aspects of the ceiling.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs to ceiling.	SF		
***{Severity L}			
b. Surface damage evidenced by stains, graffiti on ceiling.	SF		
***{Severity L}			
c. Surface material damage evidenced by dents, depression, joint separation in ceiling.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, delamination, sagging, loose or missing surface material, and material deterioration which exposes the substrate.	SF		4
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ **05.05.04 CEILING - TILE (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Suspension System Damage:** (caused by impact damage, previous maintenance patching, water intrusion, connection failure, etc.) Observation:			
a. Suspension system damage evidenced by stains, mars, scratches, or scuffs.	SF		
***{Severity L}			
b. Suspension system damage evidenced by dents, bent or loose members, or joint separation.	SF		
***{Severity M}			
c. Suspension system damage evidenced by sagging, missing members.	SF	1	4
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ 05.05.05 CEILING - METAL

Metal ceiling panels are usually suspended below the ceiling structure. The ceiling is laid into a metal or vinyl grid channel system that is laid out to fit the size of panel. The grid system is suspended from the structure with wire. With this ceiling system, mechanical and electrical systems can be contained entirely in the plenum space that it creates.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on ceiling. ***{Severity L}	SF		
b. Surface damage evidenced by stains, graffiti on ceiling. ***{Severity L}	SF		
c. Surface material damage evidenced by dents, depression, joint separation in ceiling. ***{Severity M}	SF		
d. Surface material damage evidenced by holes, cracks, loose, sagging or missing surface material, and material deterioration. ***{Severity H}	SF	2	5

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ **05.05.05 CEILING - METAL (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Suspension System Damage:** (caused by impact damage, previous maintenance patching, water intrusion, etc.) Observation:			
a. Suspension system damage evidenced by stains, mars, scratches, or scuffs.	SF		
***{Severity L}			
b. Suspension system damage evidenced by dents, bent or loose members, or joint separation.	SF		
***{Severity M}			
c. Suspension system damage evidenced by sagging, missing members.	SF	2	
***{Severity H}			
Defect:			
*** Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ 05.05.06 CEILING - GLASS

Glass ceilings are not utilized too often in buildings, however, they can be incorporated into the architectural design to obtain desired light reflection, acoustic properties, and to provide a ceiling which is actually the roof of the space.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading.	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by sagging, missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing.	SF		
***{Severity H}			
Defect:			
*** Suspension System Damage:** (caused by impact damage, previous maintenance patching, water intrusion, etc.) Observation:			
a. Suspension system damage evidenced by stains, mars, scratches, or scuffs.	SF		
***{Severity L}			
b. Suspension system damage evidenced by dents, bent or loose members, or joint separation.	SF		
***{Severity M}			
c. Suspension system damage evidenced by sagging, missing members.	SF	3	
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ 05.05.07 CEILING FINISH

Paint/stain/varnish/texture is applied as a thin layer of coating to a ceiling substrate by brush, roller, sprayer, or other suitable method.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Finish Damage:** (caused by impact damage, previous maintenance patching, insect damage, water intrusion, etc.) Observation:			
a. Finish damage evidenced by mars, scratches, scuffs, fading, and discoloration.	SF		
***{Severity L}			
b. Finish damage evidenced by stains or graffiti.	SF		
***{Severity L}			
c. Finish damage evidenced by exposure of substrate.	SF		
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ 05.05.08 CEILING FINISH - COVERING

Some interior ceilings have special covering requirements that improve the rooms appearance, acoustics, fire resistance, sanitation requirements and moisture protection.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs.	SF		
***{Severity L}			
b. Surface damage evidenced by stains, graffiti.	SF		
***{Severity L}			
c. Surface material damage evidenced by dents, depression, splitting, joint separation.	SF		
***{Severity M}			
d. Surface material damage evidenced by holes, cracks, loose, or missing surface material, and material deterioration which exposes the substrate.	SF		
***{Severity H}			

05.05 INTERIOR CEILING

COMPONENTS (Continued)

◆ **05.05.08 CEILING FINISH - COVERING (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Mortar/Grout Deterioration:** (caused by environmental exposure or building settlement, etc.) Observation:			
a. Mortar/grout deterioration evidenced by hairline cracks or soft joints.	SF		
***{Severity M}			
b. Mortar/grout deterioration evidenced by cracks, loose or missing.	SF		
***{Severity H}			
Defect:			
*** Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			

05.05 INTERIOR CEILING

REFERENCES

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

05.05 INTERIOR CEILING

LEVEL II KEY	GUIDE SHEET CONTROL NUMBER
1	GS-II 05.05.04-1
2	GS-II 05.05.05-2
3	GS-II 05.05.06-3

LEVEL III KEY	GUIDE SHEET CONTROL NUMBER
1	GS-III 05.05.01-1
2	GS-III 05.05.02-2
3	GS-III 05.05.03-3
4	GS-III 05.05.04-4
5	GS-III 05.05.05-5

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1

COMPONENT: INTERIOR CEILING - TILE
CONTROL NUMBER: GS-II 05.05.04-1

Application

This guide applies to investigation of deficiencies associated with suspension system support of suspended ceilings evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, support failure, or improper installation or use of material.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting ceilings. Additional requirements for the performance of the Level II inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Results of LEVEL I inspection indicate a deficiency in the ceiling suspension system. Although LEVEL I inspection methodology is very useful for determining the general condition of the ceiling, the LEVEL II inspection provides a more thorough analysis of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Use ladder and carefully remove ceiling panel from suspension system to allow observation of ceiling channels and channel support system to determine possible cause of deficiency.

2. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 1 (Continued)

COMPONENT: INTERIOR CEILING - TILE
CONTROL NUMBER: GS-II 05.05.04-1

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2

COMPONENT: INTERIOR CEILING - METAL
CONTROL NUMBER: GS-II 05.05.05-2

Application

This guide applies to investigation of deficiencies associated with suspension system support of suspended ceilings evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, support failure, or improper installation or use of material.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting ceilings. Additional requirements for the performance of the Level II inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Results of LEVEL I inspection indicate a deficiency in the ceiling suspension system. Although LEVEL I inspection methodology is very useful for determining the general condition of the ceiling, the LEVEL II inspection provides a more thorough analysis of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Use ladder and carefully remove ceiling panel from suspension system to allow observation of ceiling channels and channel support system to determine possible cause of deficiency.

2. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 2 (Continued)

COMPONENT: INTERIOR CEILING - METAL
CONTROL NUMBER: GS-II 05.05.05-2

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Means Illustrated Construction Dictionary, R. S. Means, 1994

5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 3

COMPONENT: INTERIOR CEILING - GLASS
CONTROL NUMBER: GS-II 05.05.06-3

Application

This guide applies to investigation of deficiencies associated with suspension system support of suspended ceilings evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, support failure, or improper installation or use of material.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting ceilings. Additional requirements for the performance of the Level II inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Results of LEVEL I inspection indicate a deficiency in the ceiling suspension system. Although LEVEL I inspection methodology is very useful for determining the general condition of the ceiling, the LEVEL II inspection provides a more thorough analysis of the cause of the deficiency or deterioration. Inspection actions to be used to further assess the extent of the component defect include the following actions:

1. Use ladder and carefully remove ceiling panel from suspension system to allow observation of ceiling channels and channel support system to determine possible cause of deficiency.

2. Modify information in Data Collection Device to reflect the condition observed through Level II inspection.

Special Tools and Equipment Requirements

None

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level II inspection is activated by deficiencies observed during the Level I inspections.

LEVEL II INSPECTION METHOD GUIDE SHEET

LEVEL II GUIDE SHEET - KEY NO. 3 (Continued)

COMPONENT: INTERIOR CEILING - GLASS
CONTROL NUMBER: GS-II 05.05.06-3

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

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6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1

COMPONENT: INTERIOR CEILING - DRYWALL
CONTROL NUMBER: GS-III 05.05.01-1

Application

This guide applies to investigation of interior drywall ceilings. Deficiencies are evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, attachment failure, animal damage, or improper installation.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting and probing ceilings. Additional requirements for the performance of the Level III inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the drywall ceiling construction.

2. Remove drywall to expose structure.

3. Visually examine joists, trusses, beam and fasteners and record the results of the detailed inspection.

4. Analyze inspection data from Level I inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

5. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 1 (Continued)

COMPONENT: INTERIOR CEILING - DRYWALL
CONTROL NUMBER: GS-III 05.05.01-1

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing ceiling material
3. Tools and material for patching inspection access openings

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990
4. Means Illustrated Construction Dictionary, R. S. Means, 1994
5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 2

COMPONENT: INTERIOR CEILING - PLASTER
CONTROL NUMBER: GS-III 05.05.02-2

Application

This guide applies to investigation of interior plaster ceilings. Deficiencies are evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, attachment failure, animal damage, or improper installation.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting and probing ceilings. Additional requirements for the performance of the Level III inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the plaster ceiling construction.

2. Remove plaster and lathe to expose structure.

3. Visually examine joists, trusses, beam and fasteners and record the results of the detailed inspection.

4. Analyze inspection data from Level I inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

5. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 2 (Continued)

COMPONENT: INTERIOR CEILING - PLASTER
CONTROL NUMBER: GS-III 05.05.02-2

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing ceiling material
3. Tools and material for patching inspection access openings

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
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6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 3

COMPONENT: INTERIOR CEILING - WOOD
CONTROL NUMBER: GS-III 05.05.03-3

Application

This guide applies to investigation of interior wood ceilings. Deficiencies are evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, attachment failure, insect damage, or improper installation.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting and probing ceilings. Additional requirements for the performance of the Level III inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the wood ceiling construction.

2. Remove wood to expose structure.

3. Visually examine joists, trusses, beam and fasteners and record the results of the detailed inspection.

4. Analyze inspection data from Level I inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

5. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 3 (Continued)

COMPONENT: INTERIOR CEILING - WOOD
CONTROL NUMBER: GS-III 05.05.03-3

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing ceiling material
3. Tools and material for patching inspection access openings

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
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6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 4

COMPONENT: INTERIOR CEILING - TILE
CONTROL NUMBER: GS-III 05.05.04-4

Application

This guide applies to investigation of interior tile ceilings. Deficiencies are evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, attachment failure, animal damage, or improper installation.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting and probing ceilings. Additional requirements for the performance of the Level III inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the tile ceiling construction.

2. Remove ceiling material to expose structure.

3. Visually examine joists, trusses, beam and fasteners and record the results of the detailed inspection.

4. Analyze inspection data from Level I and II inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

5. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 4 (Continued)

COMPONENT: INTERIOR CEILING - TILE
CONTROL NUMBER: GS-III 05.05.04-4

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing ceiling material
3. Tools and material for patching inspection access openings

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990
4. Means Illustrated Construction Dictionary, R. S. Means, 1994
5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 5

COMPONENT: INTERIOR CEILING - METAL
CONTROL NUMBER: GS-III 05.05.05-5

Application

This guide applies to investigation of interior metal ceilings. Deficiencies are evidenced by deflection, uneven surface, discoloration, misalignment, cracks, etc. The condition may be the result of impact damage, moisture, attachment failure, or improper installation.

Special Safety Requirements

Inspections of ceilings may present hazards due to working at heights and exposure to electrical cabling located over ceiling system. Caution should be used in inspecting and probing ceilings. Additional requirements for the performance of the Level III inspection are contained in the Master Safety Plan and System Safety Section.

Inspection Action

Level III inspection requires the expertise of an individual that is trained and qualified in the inspection and analysis of the structural integrity of buildings to further assess the extent of the component defect.

1. Review facility data files (As-Builts, Architectural and Structural plans) to determine the design intent and apparent requirement of the metal ceiling construction.

2. Remove ceiling material to expose structure.

3. Visually examine joists, trusses, beam and fasteners and record the results of the detailed inspection.

4. Analyze inspection data from Level I and II inspection, in conjunction with the As-Built drawings, Architectural and Structural plans, to determine whether further inspection should be performed, and if so, by in-house technical capabilities or by licensed technician/engineer.

5. Order inspection to be completed to determine extent and cost associated with correcting the deficiency.

LEVEL III INSPECTION METHOD GUIDE SHEET

LEVEL III GUIDE SHEET - KEY NO. 5 (Continued)

COMPONENT: INTERIOR CEILING - METAL
CONTROL NUMBER: GS-III 05.05.05-5

Special Tools and Equipment Requirements

The following is a list of special tools and equipment beyond those listed in the Standard Tool Section.

1. Saw for cutting access holes
2. Tools for removing ceiling material
3. Tools and material for patching inspection access openings

Recommended Inspection Frequency

There is no standard frequency prescribed for this component. The Level III inspection is activated by deficiencies observed during the Level I and/or Level II inspections.

References

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987
2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983
3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990
4. Means Illustrated Construction Dictionary, R. S. Means, 1994
5. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993
6. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

05.06 INTERIOR MILLWORK

DESCRIPTION

Millwork is a subsystem of Building Interior and includes specialty items such as cabinets, countertops and baseboards.

SPECIAL TOOL AND EQUIPMENT REQUIREMENTS

No special tools are needed for the inspection of the Interior Millwork, beyond the requirements listed in the Building Interior Standard Tools Section.

SPECIAL SAFETY REQUIREMENTS

No special safety requirements are needed for the inspection of the Interior Millwork, beyond the requirements listed in the Master Safety Plan and System Safety Section.

COMPONENT LIST

- 05.06.01 INTERIOR MILLWORK - CABINETS/BOOKCASES/SHELVING
- 05.06.02 INTERIOR MILLWORK - COUNTER TOPS
- 05.06.03 INTERIOR MILLWORK - METAL CABINETS/SHELVING
- 05.06.04 INTERIOR MILLWORK - HARDWARE
- 05.06.05 INTERIOR MILLWORK - FINISH

RELATED SUBSYSTEMS

Due to the related nature of the elements requiring inspection, the following should be reviewed for concurrent inspection activities.

05.01	INTERIOR PARTITION
05.04	INTERIOR FLOOR
05.05	CEILING

STANDARD INSPECTION PROCEDURE

The standard inspection procedure for this subsystem is a Level I Inspection of interior millwork, augmented by a Level II Inspection when required. Some inspections may require the use of a ladder or similar device. The inspection should be carried out in order of presentation of the various components. Associated defects and observations are listed which will be presented in the inspector's Data Collection Device.

05.06 INTERIOR MILLWORK

COMPONENTS

◆ 05.06.01 INTERIOR MILLWORK - CABINETS/BOOKCASES/SHELVING

Wood cabinets are custom built on-site or pre-manufactured to specification in a factory. They are constructed in either flush or panel design, commonly of solid wood, plywood, or particle board with a laminate finish. Cabinets are described as base cabinets, wall cupboards, or vanity depending on their use and location.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on millwork.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of millwork.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			
Defect:			
*** Glass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading	SF		
***{Severity L}			
b. Damage evidenced by cracks.	SF		
***{Severity M}			
c. Glass damage evidenced by missing or broken with holes.	SF		
***{Severity H}			
d. Deteriorated or missing glazing	SF		
***{Severity H}			

05.06 INTERIOR MILLWORK

COMPONENTS (Continued)

◆ 05.06.02 INTERIOR MILLWORK - COUNTER TOPS

The counter top provides a level, uniform, and durable working surface attached to and supported by the base cabinet or vanity. Counter tops are normally constructed to complement the cabinet or vanity to which they are attached and are commonly made of wood or plywood finished to desired qualities or a high-pressure type of plastic laminate bonded to a base or core material that is smooth and dimensionally stable. Metal counter tops include rolled sheets of steel, aluminum, stainless steel or other alloys designed for the specific application. Other special materials included ceramic tile, marble, fiber glass, glass or special composite materials designed for specific applications.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on counter.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression, splitting of top.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, cracks, delamination, loose surface material, and material deterioration.	SF		
***{Severity H}			

05.06 INTERIOR MILLWORK

COMPONENTS (Continued)

◆ 05.06.03 INTERIOR MILLWORK - METAL CABINETS/SHELVING

Metals such as steel, aluminum and stainless steel are sometimes used in locations requiring special consideration for chemicals, corrosives or other materials used in a corrosive, chemical or industrial environment. Metal cabinets are commonly manufactured to various standards to produce metal cabinet products comprised of metal sections that have been rolled or extruded and joined by welding, brazing, soldering, mechanically formed lap or batten seams, and by mechanical fasteners, such as screws and bolts. Metals used in cabinets can be economically shaped into any section desired to provide a cabinet that is solid, noncorrosive, and strong in proportion to its weight. Metal cabinets may be supplied bonded and primed, galvanized and primed, factory-finished in selected colors, or in stainless steel.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Surface Damage:** (caused by impact damage, previous maintenance patching, animal damage, water intrusion, etc.) Observation:			
a. Surface damage evidenced by mars, scratches, or scuffs on cabinets.	SF		
***{Severity L}			
b. Surface material damage evidenced by dents, depression on cabinets.	SF		
***{Severity M}			
c. Surface material damage evidenced by holes, loose surface material, joint separation, and material deterioration.	SF		
***{Severity H}			
Defect:			
* **Corrosion:** (caused by water damage, etc.) Observation:			
a. Surface deterioration (no pitting evident).	SF		
***{Severity L}			
b. Deterioration evidenced by pitting, or blistering.	SF		
***{Severity M}			
c. Deterioration evidenced by holes or loss of metal.	SF		
***{Severity H}			

05.06 INTERIOR MILLWORK

COMPONENTS (Continued)

◆ **05.06.03 INTERIOR MILLWORK - METAL CABINETS/SHELVING (Continued)**

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Glass Damage:** (caused by impact damage, exposure, etc) Observation:			
a. Damage evidenced by fading. ***{Severity L}	SF		
b. Damage evidenced by cracks. ***{Severity M}	SF		
c. Glass damage evidenced by missing or broken with holes. ***{Severity H}	SF		
d. Deteriorated or missing glazing. ***{Severity H}	SF		

05.06 INTERIOR MILLWORK

COMPONENTS (Continued)

◆ 05.06.04 INTERIOR MILLWORK - HARDWARE

Hardware is mounted to doors, drawers, and frames to facilitate hanging, operating, closing, locking, sealing, or protecting.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Inoperable:** (caused by impact damage, wear, and use)			
Observation:			
a. Hardware operates poorly (sticks, hard to turn, etc).	EA		
***{Severity M}			
b. Fails to perform intended operation. (Door/drawers do not open/close lock/latch)	EA		
***{Severity H}			
Defect:			
* **Physical Damage:** (caused by impact damage, wear, and use)			
Observation:			
a. Loose, worn, or misaligned. Requires tightening or adjusting.	EA		
***{Severity L}			
b. Broken or missing hardware.	EA		
***{Severity H}			

05.06 INTERIOR MILLWORK

COMPONENTS (Continued)

◆ 05.06.05 INTERIOR MILLWORK - FINISH

Finishes are applied as a thin layer of coating to a substrate by brush, roller, sprayer, or other suitable method. The coating seals, protects, or provides the desired appearance.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
* **Finish Damage:** (caused by impact damage, previous maintenance patching, insect/ animal damage, water intrusion, exposure, etc.) Observation:			
a. Finish damage evidenced by mars, scratches, scuffs, fading, and discoloration of finish. ***{Severity L}	SF		
b. Finish material damage evidenced by exposure of substrate. ***{Severity H}	SF		

05.06 INTERIOR MILLWORK

REFERENCES

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Construction Principles, Materials & Methods, H. B. Olin, A.I.A., Interstate Printers and Publishers, Inc. Fifth Edition, 1983

3. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

4. Modern Masonry, R. Putnam, Harcourt Brace Jovanovich, Publishers, 1988

5. Condition Assessment Survey (CAS) Program, Deficiency Standards & Inspections Methods Manual, Vol. 6, Interior Closures, Department of Energy, 1993

6. Means Building Construction Cost Data, R. S. Means, 52nd Edition, 1994

7. Means Illustrated Construction Dictionary, R. S. Means, 1994

8. Architectural & Engineering Concrete Masonry Details for Building Construction, A. Elmiger, National Concrete Masonry Association, 1976

9. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

10. Modern Carpentry, W. H. Wagner, The Goodheart-Wilcox Company, Inc., 1983

11. NASA Facilities Maintenance Handbook, NHB 8831.2, 1991

05.06 INTERIOR MILLWORK

LEVEL II KEY GUIDE SHEET CONTROL NUMBER

N/A

LEVEL III KEY GUIDE SHEET CONTROL NUMBER

N/A

05.07 INTERIOR INSULATION

DESCRIPTION

Interior Insulation is a subsystem of Building Interior and includes primarily thermal insulation, some types incorporating vapor barriers and acoustical properties.

SPECIAL TOOL AND EQUIPMENT REQUIREMENTS

No special tools are needed for the inspection of the Interior Insulation, beyond the requirements listed in the Building Interior Standard Tools Section.

SPECIAL SAFETY REQUIREMENTS

No special safety requirements are needed for the inspection of the Interior Insulation, beyond the requirements listed in the Master Safety Plan and System Safety Section.

COMPONENT LIST

- 05.07.01 INTERIOR EXPOSED INSULATION

RELATED SUBSYSTEMS

Due to the related nature of the elements requiring inspection, the following should be reviewed for concurrent inspection activities.

05.01	INTERIOR PARTITION
05.04	INTERIOR FLOOR
05.05	CEILING

STANDARD INSPECTION PROCEDURE

The standard inspection procedure for this subsystem is a Level I Inspection of exposed insulation where applied to interior building surfaces. Some inspections may require the use of a ladder or similar device. The inspection should be carried out in order of presentation of the component, defect and observations, as viewed in the Field CAIS, Data Collection Device.

05.07 INTERIOR INSULATION

COMPONENT

◆ 05.07.01 INTERIOR EXPOSED INSULATION

Insulation applied externally to interior surfaces by spraying or mechanical fasteners is used as thermal/moisture and, in some cases, acoustical insulation.

Defect:	UOM	LEVEL II KEY	LEVEL III KEY
*** Damaged Insulation:**			
Observation:			
a. Loose insulation	SF		
***{Severity L}			
b. Missing insulation	SF		
***{Severity H}			
c. Wet insulation	SF		
***{Severity H}			

05.07 INTERIOR INSULATION

REFERENCES

1. Building Construction Materials and Types of Construction, D. C. Ellison, W.C. Huntington, R.E. Mickadeit, John Wiley & Sons, Inc., Sixth Edition, 1987

2. Fundamentals of Building Construction Materials and Methods, E. Allen, John Wiley & Sons, Second Edition, 1990

3. Means Illustrated Construction Dictionary, R. S. Means, 1994

4. Basic Construction Materials, Methods and Testing, T. W. Marotta, C. A. Herubin, P.E., Regents/Prentice Hall, Fourth Edition, 1993

5. ASTM C665 Specification for Mineral Fibre Blanket, Thermal Insulation for Light Frame Construction and Manufactured Housing

6. ASTM C728 perlite Thermal Insulation Board

05.07 INTERIOR INSULATION

LEVEL II KEY **GUIDE SHEET CONTROL NUMBER**

N/A

LEVEL III KEY **GUIDE SHEET CONTROL NUMBER**

N/A

APPENDIX A

ABBREVIATIONS

ACB	Asbestos-Cement Board
BLDG	Building
CAS	Condition Assessment Survey
CF	Cubic Feet
CLG	Ceiling
CMU	Concrete Masonry Unit
CONC	Concrete
CONSTR	Construction
CSA	Civil/Structural/Architectural
CU. FT.	Cubic Feet
CU. IN.	Cubic Inches
DCD	Data Collection Device
DOD	Department of Defense
DS/IM	Deficiency Standard/Inspection Method
EA	Each
EFIS	Exterior Finish Insulation System
ELEC	Electric, Electrical
ENCL	Enclosure
EPDM	Ethylene Propylene Diene Monomer
EST	Estimate
EXT	Exterior
FIN	Finish
FLR	Floor

APPENDIX A

FM	Facility Manager
FRP	Fiberglass Reinforced Panel
FT	Foot, Feet
FTG	Footing
GALV	Galvanized
GYP	Gypsum
H	High
HT	Height
HVAC	Heating, Ventilating, and Air Conditioning
IN	Inch
INSUL	Insulation
INT	Interior
IU	Inspection Unit
L	Low
LF	Linear Foot
LGTH	Length
M	Medium
MAT'L	Material
MECH	Mechanical
MFG	Manufacturer
MISC	Miscellaneous
PC	Portland Cement
PREFAB	Prefabricated
PVC	PolyVinyl Chloride

APPENDIX A

REBAR	Reinforcing Bar
RM	Room
RPI	Real Property Inventory
SF	Square Foot
STD	Standard
SY	Square Yard
TYP	Typical
UOM	Unit Of Measure
WBS	Work Breakdown Structure
/	And
W/	With
'	Foot, Feet
"	Inch, Inches
>	Greater than
<	Less Than

APPENDIX B

GLOSSARY

Acoustic	A term used to define sound properties and control.
Automatic Operators	Mechanical devices which facilitate the operation (opening/closing) of doors.
Electrical Components	Electrical devices such as boxes, outlets, switches, etc.
Efflorescence	A whitish powdery deposit of soluble salts carried to the surface of stone, brick, plaster, concrete, or mortar by moisture.
Glazed Curtain	A curtain wall made up of a combination of metal framing with glass, plastic or other glazing material.
Hardwood	A general term referring to any of a variety of broad-leaved, deciduous trees (oak, walnut, etc.).
Mechanical Components	Mechanical devices such as diffusers and pipes.
Plenum	A closed chamber used to distribute or collect warm or cooled air in a forced air heating/cooling system. Commonly located between floor or roof above.
Plexiglass	A trademark for light, transparent, weather-resistant thermoplastic.
Rails	A horizontal member forming the framework of a door/window.
Running Trim	Millwork used to finish off joints, corners, windows, doors, base, ceiling, etc. which runs in the horizontal plane.
Spalling	A fragment usually in the shape of a flake, detached from a larger mass by a blow, through the action of weather, by pressure, or by expansion.
Standing Trim	Millwork used to finish off joints, corners, windows, doors, base, ceiling, etc. which runs in the vertical plane.
Stiles	A vertical member forming the framework of a door/window.
Substrate	An underlying material that supports or is bonded to another material on its surface.
Softwood	A general term referring to any of a variety of trees having narrow needle like leafs, usually coniferous (pine, etc.).

APPENDIX B

Transom	A glazed or solid panel over a door or window.
Wythe	A continuous vertical section of a wall one masonry unit in thickness.

APPENDIX C

LIFE CYCLES

05 BUILDING INTERIOR

05.01 INTERIOR PARTITION

05.01.01	INTERIOR PARTITION - CONCRETE	75 YRS
05.01.02	INTERIOR PARTITION - MASONRY/STONE	75 YRS
05.01.03	INTERIOR PARTITION - STUD FRAMING	50 YRS
05.01.04	INTERIOR PARTITION - GLASS	25 YRS
05.01.05	INTERIOR PARTITION - ACCORDION/FOLDING	24 YRS
05.01.06	INTERIOR SURFACE - DRYWALL	75 YRS
05.01.07	INTERIOR SURFACE - PLASTER	75 YRS
05.01.08	INTERIOR SURFACE - WOOD	30 YRS
05.01.09	INTERIOR WALL FINISH	6 YRS
05.01.10	INTERIOR WALL COVERING	20 YRS
05.01.11	INTERIOR STANDING/RUNNING TRIM	75 YRS

Source:
Means Facilities Maintenance & Repair Cost Data, 1994

05.02 INTERIOR DOOR 40 YRS

Source:
Means Facilities Maintenance & Repair Cost Data, 1994

05.03 INTERIOR WINDOW 45 YRS

Source:
Means Facilities Maintenance & Repair Cost Data, 1994

05.04 INTERIOR FLOOR

05.04.01	INTERIOR FLOOR - CONCRETE	75 YRS
05.04.02	INTERIOR FLOOR - WOOD	40 YRS
05.04.03	INTERIOR FLOOR - METAL	30 YRS
05.04.04	INTERIOR FLOOR COVERING - CARPET	8 YRS
05.04.05	INTERIOR FLOOR COVERING - CERAMIC TILE	50 YRS
05.04.06	INTERIOR FLOOR COVERING - SOFT TILE	18 YRS
05.04.07	INTERIOR FLOOR COVERING - WOOD INLAY	40 YRS
05.04.08	INTERIOR ACCESS FLOOR	60 YRS
05.04.09	INTERIOR FLOOR - STONE/MASONRY	40 YRS
05.04.10	INTERIOR FLOOR FINISH	10 YRS

Source:
Means Facilities Maintenance & Repair Cost Data, 1994

APPENDIX C

LIFE CYCLES (Cont).

05.05 INTERIOR CEILING

05.05.01	CEILING - DRYWALL	40 YRS
05.05.02	CEILING - PLASTER	75 YRS
05.05.03	CEILING - WOOD	50 YRS
05.05.04	CEILING - TILE	50 YRS
05.05.05	CEILING - METAL	40 YRS
05.05.06	CEILING - GLASS	40 YRS
05.05.07	CEILING FINISH	15 YRS
05.05.08	CEILING FINISH - COVERING	20 YRS

Source:
Means Facilities Maintenance & Repair Cost Data, 1994

05.06 INTERIOR MILLWORK

05.06.01	MILLWORK - CABINETS/BOOKCASES/SHELVING	75 YRS
05.06.02	MILLWORK - COUNTER TOPS	25 YRS
05.06.03	MILLWORK - METAL CABINETS/SHELVING	75 YRS
05.06.04	MILLWORK - HARDWARE	20 YRS
05.06.05	MILLWORK - FINISH	10 YRS

Source:
Means Facilities Maintenance & Repair Cost Data, 1994